

MODEL AIRPLANE NEWS

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DECEMBER 1954—35 CENTS



GAS MODELS

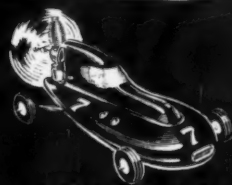
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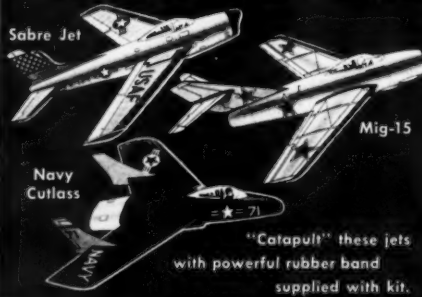
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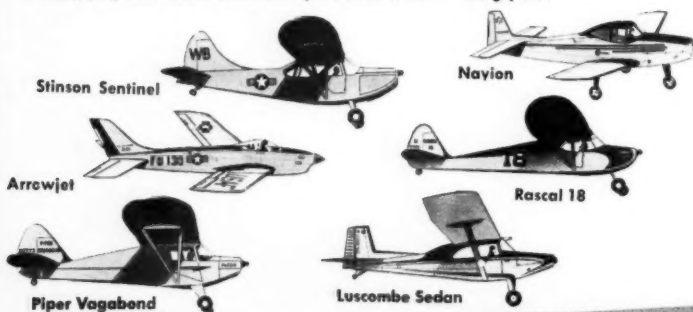
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Guaranteed to FLY!

25¢ JIGTIME JETS



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TOP FLITE

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Complete with integral, large capacity fuel tank; enclosed 3-to-1 planetary gear and clutch; famous O & R out-of-sight .29 cu. in. specially designed, easy-starting model car engine; pressure baffle cooling.

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Less power unit . . . **\$6.95**



Ohlsson & Rice **HELLZ-FYRE** — guaranteed world's hottest, fastest, finest speed fuel yet developed — For peak performance in competition.

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MODEL AIRPLANE NEWS

26th Year of Publication

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by
William
Winter



► For years more rabid oldtimers have been yelling that the hobby is going to the dogs. Prefabrication was a devil in disguise in their estimation. Being of a somewhat lazy disposition when it comes to building—as may be surmised from the adornment at the top of the column—MAN at Work succumbed long ago to the “evils” of letting the manufacturer hew out the blocks and die cut the plywood, although we were not aloof to the idea of bolstering the kit with a piece or two of hard balsa where required. The way things are going lately, we too have begun to wonder what fate holds in store for the serious modeler.

In the beginning was mail order. You got your plans from a magazine and ordered your wood, paper and dope through the mail. The enterprising modelers started selling materials to fellow modelers and became “dealers.” Soon the model business looked good enough to

attract outsiders. And when there were enough dealers, ambitious dealers became distributors. By 1945 the industry was doing a \$30-million annual gross. Talk was of \$50-million. All this had been built upon the chap who built up his model airplanes.

Now it is the nature of all businessmen ever to seek for greater volume. The fellow who makes peanuts wants to live; the guy with a million wants another. So hobby shop progress trends in the direction of toys and crafts. Of the former, progress did not always stop at Lionel or American Flyer trains but included things like educational blocks for junior. Crafts eventually covered the waterfront: beadwork, ceramics, sculpture, basket weaving. We serious modelers didn't object, although the atmosphere was at times oppressive, as long as we could obtain the kit we wanted, or the materials to make our planes. (Continued on page 6)



PLANE ON THE COVER

The Navy's first fighter capable of exceeding Mach 1 in level flight, new Grumman F9F-9 Tiger, features the up-to-the-minute low stabilizer location, also seen on the AF's North American Super Sabre 100. The Tiger can carry air-to-air or air-to-ground missiles. The powerplant is the J-65, the Wright-built Sapphire developing 7,220 pounds of thrust without use of afterburner. Wing tips fold manually. Points of interest include wing fences, leading edge droop slats, flying tail, small tip ailerons for feel.



NEXT MONTH'S COVER

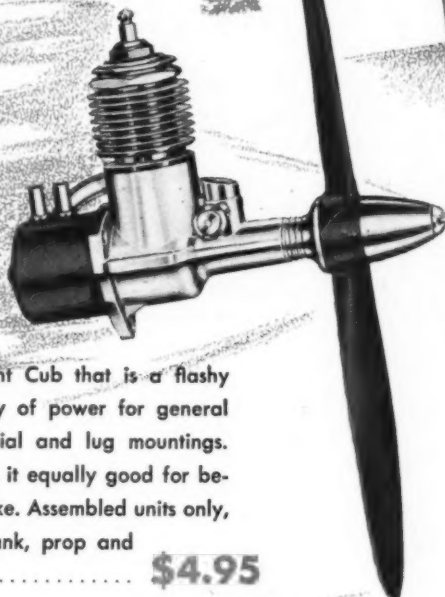
Vickers Vampire Scout, interesting pusher fighter of World War I, points up ingenuity of design even in those days. This was a trench strafing job, hence the pusher arrangement. Weight empty, 1,870 pounds, included 500 pounds of armor plating! A 200 hp BR-2 engine gave a speed of 121 mph on the deck.



"OK" Cubs make OK Gifts
for Christmas
and all the year!

OK CUB

.049B

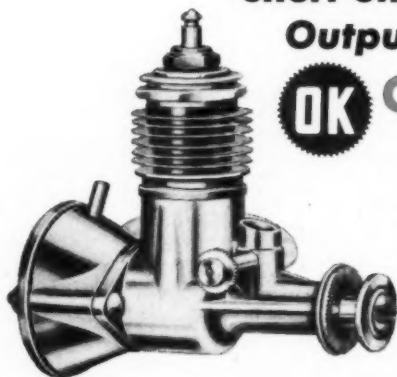


HERE'S a light-weight Cub that is a flashy performer with plenty of power for general flying. Has both radial and lug mountings. Versatility that makes it equally good for beginner and expert alike. Assembled units only, complete with fuel tank, prop and spinner

\$4.95

Short Stroke, High Output for the Expert

OK CUB .049X



A top performer in the 1/2 A Class for the advanced hobbyist. Displaces .049 with a bore of .420 and a stroke of .360. Lighter weight and greater power make it ideal for contest flying. Radial mounting for either direct connected or remote fuel tank. Combination package containing engine, prop, fuel tank, extra rear cover and neoprene tubing

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"OK" DIESEL FUEL
Pint 85¢



"OK" GLOW PLUGS
Short or long —
59¢



"OK" CUB .049B
Power Kit
\$3.95



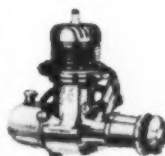
"OK" CUB .074
\$5.95



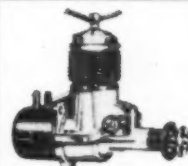
"OK" CUB .099
\$6.95



"OK" CUB .14 \$7.95
"OK" CUB .19 8.95



"OK" HOTHEAD
\$10.95



"OK" CUB DIESELS
.049 \$5.95
.075 7.50



"OK" COMBINATION
PACKAGES
CUB .049X . . . \$5.75
CUB .074 . . . 6.75
CUB .099 . . . 7.75

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88 HARTER STREET

HERKIMER, N. Y.

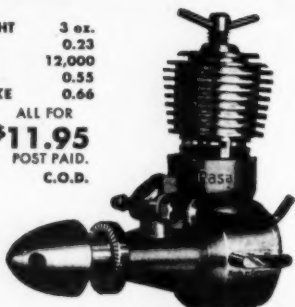


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NOW LET RASANT PUT DISTANCE, SPEED AND ENDURANCE IN YOUR FREE FLIGHT, CONTROL, RADIO AND STUNT FLYING. RASANT PRECISION ASSURES EASY STARTING—SMOOTH RUNNING.

SEND FOR YOUR RASANT .15 TODAY.

Each motor equipped with test block, neoprene fuel line, spinner and wrench.

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SEND 10¢ (COIN OR STAMPS)
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GERMAN FUEL INJECTION SYRINGES

Complete with injection needle, finest quality workmanship—no more guesswork when filling your tank—no more fly aways.



No. 1326/1	Cylinder capacity 0.07 ozs.	\$2.25
No. 1326/2	Cylinder capacity 0.175 ozs.	3.25
No. 1326/3	Cylinder capacity 0.350 ozs.	3.50

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HOLLAND Wasp

Here it is—ready to go! Powerful "Holland-built" Wasp .049 engine—matched prop, tank, quick-acting glow plug clip, wrench... "the works" in a box. Engineered by the 1948 National Champion for Championship flights.

Free Flight . . . \$5.95 U-Control . . . \$5.70

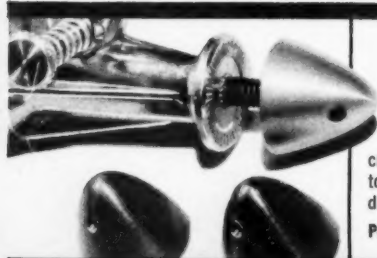
SPECIAL WASP CRANKSHAFT

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Marked "L. H."—
Price \$1.75

1. For use with standard propellers on pusher type airplanes.
2. The answer for twin engine airplanes with a left hand propeller on the L. H. engine in combination with a standard engine and propeller. Will eliminate torque.



WASP PROPELLER SPINNER

Lightweight—Streamlined. 3 brilliant colors: red, blue, yellow. Dresses up your model and protects fingers from shaft threads when cranking engine. Furnished with torque wire wrench. Fits any $\frac{3}{8}$ " dia. x 40 thread shaft.

Price \$.30 each



HOLLAND ENGINEERING CO.

12926 Saticoy Street, Unit #3, North Hollywood, California

MAN at Work

(Continued from page 2)

With plastic planes the situation became more complex. Do plastic models create modelers? Are they toys? Are they model airplanes? Nobody wants to hack out his own solids any more, so what?

All these things affected the dealer and worked back up the line to the manufacturer. Many times, loose supplies were considered a nuisance. Who wants kids dallying over the balsa box, or asking for washers, prop nuts, music wire, or decals, when you could sell a nicely packaged kit, neat and quick like?

One manufacturer puts up a handy display rack for balsa wood, and good wood it is. When popular sizes sell out, it has become a short-sighted habit not to reorder wood until the rack is empty. By the time the odd sizes are gone, the shop's regular customers are touring the county, only to find that the same situation applies at many other shops. Or is this hot potato the distributor's responsibility?

It's gotten so, you have to wander from shop to shop looking for a popular size prop, a particular fuel, a certain plug. It's rough! Possibly, there are exceptions, but there is a saying about exceptions. It is a fair question to ask the retailer if he isn't taking the model plane builder too much for granted.

Our favorite nightmare involves a mailman, burdened with sacks of reader questions. No one person could even begin to know all the answers. Take, for example, the problem of the Fishery Biology Research at Bonneville Dam, Oregon. "We are aware that model airplane enthusiasts are ingenious (ahem—Ed.) and that they have developed many types of timers," states the Resident Biologist, baiting the trap. It seems that salmon are placed in gossamer fabric bags, to which are attached delayed action, automatically inflating toy balloons, and the whole business is sent through the powerhouse and spillway. Boatmen below the dam retrieve the inflated balloons and fish for study of the effects of passage on the fish. These effects, we imagine, rate with those of a four-day Nationals. A quantity of water is placed inside the balloons to dissolve gelatine capsules, which are filled with calcium hydride, or a dry mixture of citric acid and sodium bicarbonate. The reaction with water forms a gas, inflating the balloon, after passage through the dam, so that the boatmen can see them. Gelatine capsules are poor timers. This suggests fascinating possibilities, especially in the case of an over-run. See what we mean?

Then there was the description of combat in Model Flying News, SMAE, England. "In this contest, two or three pilots stand in the center of the circle," explained MFN. Each holds a control handle to which is attached a bellcrank in the fuselage of his model by a pair of steel wires. Thus the pilot is able to control his model by tilting the handle, while the model flies around him in a fixed circle (you there, Luce?). To each model is attached a streamer, the object being to cut the opponent's streamer with the propeller of one's own model—an operation requiring considerable skill and nicety and leading to violent evasive action, with consequent thrills, kills and spills. To which we add, "Good show." Of payload jobs they say, "... Actually carry a payload, much as a full size airplane might do, in the form of a dummy passenger of a rather cubist nature..." A square, in other words.

It is much too soon to jump the gun on the stunt rules, still in the works, but we can report some thoughts being mulled over by Jack Scharf, Don Still and George Aldrich: 1. Appearance points cut to 30: 10 for finish, 10 for workmanship, 10 for originality; 2. Elimination of pattern points. Any maneuver

(Continued on page 60)

Flash News

Many developments push back the air frontier -- this monthly report will keep you in the know.



by ROBERT McLARREN

Air Force has placed its third, and largest, order for the North American F-100 Super Sabre supersonic jet fighter. The new \$100 million contract involves well over 100 of the swept-wing machines. The new group will be built at NAA'S Columbus, Ohio plant, providing a second source of supply in addition to the production line at the company's Los Angeles facilities. The F-100 holds the world's speed record of 755.19 mph set last October.

Maj. John L. Armstrong raised the world's speed record for 500 km (310.685 mi.) to 649.302 mph in a North American F-86H, a version of the familiar Sabre powered by a General Electric J73 engine of more than 9,000 lb. thrust. The previous record of 607.1 mph was held by Capt. Anders Westerlund in the Saab Lancer of the Swedish Air Force. Maj. Armstrong lost his life the day after the record attempting to improve his speed mark.

Sikorsky XH-39 helicopter has raised the rotary-wing speed record to 156.005 mph. The new machine is powered by an imported French Turbomeca Artouste gas turbine engine of 400 hp. The little Sikorsky helicopter features a retractable landing gear.

Lockheed says its new R7V-2 Super Constellation with turboprop engines is the world's fastest transport. Flown recently for the first time, the new Navy model is powered by four Pratt & Whitney T34 turboprop engines of 5,500 hp each. Its makers say it has a cruising speed of 440 mph, the top speed of the best World War II single-seat fighters. As a Navy cargo carrier, the new R7V-2 can carry 10 tons for 3000 miles with ample fuel still in reserve. It can carry 16 tons on non-stop transcontinental flights of less than six hours. It is in quantity production at the Burbank plant and Lockheed is putting finishing touches on a commercial airline design to be ready within two years.

New York Airways has inaugurated the world's first scheduled night service for passenger helicopters. The Sikorsky S-55

transport helicopter used in the new service is equipped with landing lights and carries two 75,000-candlepower emergency flares, which light up about 8,500 sq. ft. of terrain for a period of 8-10 seconds. Initial service between New York's three major airports will be extended later to Trenton, N. J. and Bridgeport, Conn., providing fast service for passengers arriving at night on major airlines.

Air Force admits that its Bell X-1A rocket-powered research plane has attained an altitude of 90,000 ft., a new unofficial world's record. Flown by Maj. Arthur Murray, the straight-wing plane is launched from the belly of a "mother" plane at about 30,000 ft. and its performance, therefore, does not constitute an official world's record.

Busiest airport in the U.S. during the past fiscal year was the Chicago Midway Airport with 349,360 take-offs and landings. Ranking second was Los Angeles International with 277,085 and third busiest was Miami International with 268,419. The remaining "top ten" were Honolulu, Cleveland, Denver, New York's LaGuardia, Atlanta, Long Beach (Calif.) and Dallas, in that order. These movements include both airline and private aircraft. On the basis of airline operations alone, the rankings were Chicago, New York's LaGuardia and Washington, D.C.

Fairchild is conducting tests of its J-44 turbojet missile engine mounted atop the fuselage of a C-82 Packet transport for take-off assistance. The 1,000-lb. thrust engine, used in the Ryan Q-2 Firebee target drone, reduces the take-off distance and permits higher take-off weights for the Flying Boxcar. Company says the self-contained engine can be mounted on top, sides or bottom of any transport fuselage or a pair installed on the wingtips.

Trans World Airlines will continue to offer sleeper service on its transcontinental routes with introduction of the new Lockheed L-1049G Super Constellation transports. TWA operates the only transcontinental sleeper service with eight berths in its current L-1049 equipment. Berths sell for \$50 extra for a lower and \$25 extra for an upper. Company reports sleeper load factors remain as good or better than seat service from New York and San Francisco but definitely higher in planes leaving Los Angeles. American Airlines discontinued sleeper service with introduction of its Douglas DC-7 transports.

Marine Corps has demonstrated a new system of take-off

(Continued on page 56)

Build the Monogram Four Engine Bombers

Enjoy the newest thrill in
MODEL BUILDING
...with the most fabulous kits in aircraft history!

Have you seen these new super deluxe kits fellows? They are true scale copies of the two famous four engine heavy bombers of World War II. Never before has there been such kits as these — packed with so much thrilling fun — complete to the last tiny part — the last bit of material. No parts to make. No extra material or accessories to buy.

NEW!

Watch for the Big
"Show Case" Display
in Dealers Stores.

B-24 Liberator

New Super Deluxe Kit No. H-4

A beautiful model with terrific realism and super details. Contains 46 molded acetate plastic parts and 49 finished balsa parts. Prefab fuselage and tail assembly. Famous Monofoil wing. Big tube Mono-Glue. Four one-ounce jars Mono-Dope in needed colors. Authentic decals. Plans. Instruction book. Nothing else to buy.



NEW!

\$4.95

Only
Complete Kits--
Nothing Else to Buy



B-17 Flying Fortress

New Super Deluxe Kit No. H-3

The finest model of this famous aircraft. Build this sleek beauty with 50 molded acetate plastic parts and 49 finished balsa parts. Prefab fuselage and tail assembly. Famous Monofoil wing. You need only this super deluxe kit. Large tube Mono-Glue and four jars Mono-Dope in authentic colors included. Plans. Instruction book. Decals. Nothing else to buy.

\$4.95

Molded Plastic
and Finished Balsa Parts

NEW!



BE SURE TO GET MONOGRAM'S FINISHING KIT

What every model builder needs, now in handy assortment. One large tube Mono-Glue. Six full one-ounce jars Mono-Dope in most used colors. Genuine quick drying acetate products—not slow drying enamel. Use on Monogram and other acetate plastic parts, balsa and miscellaneous materials. Regular \$1.05 value. Special, only 98 cents. Ask your dealer for Mono-Glue and Mono-Dope in 12 colors and finishes. 15 cents.



Other Famous Aircraft

\$3.50

Twin Engine Bombers

Two famous medium bombers in real deluxe kits. Same fine quality and detail as big four engine bombers.



B-25 Mitchell

Contains 34 molded plastic parts, 57 finished balsa parts. Prefab fuselage and Monofoil Wing. Decals, etc. \$3.50.

B-26 Invader

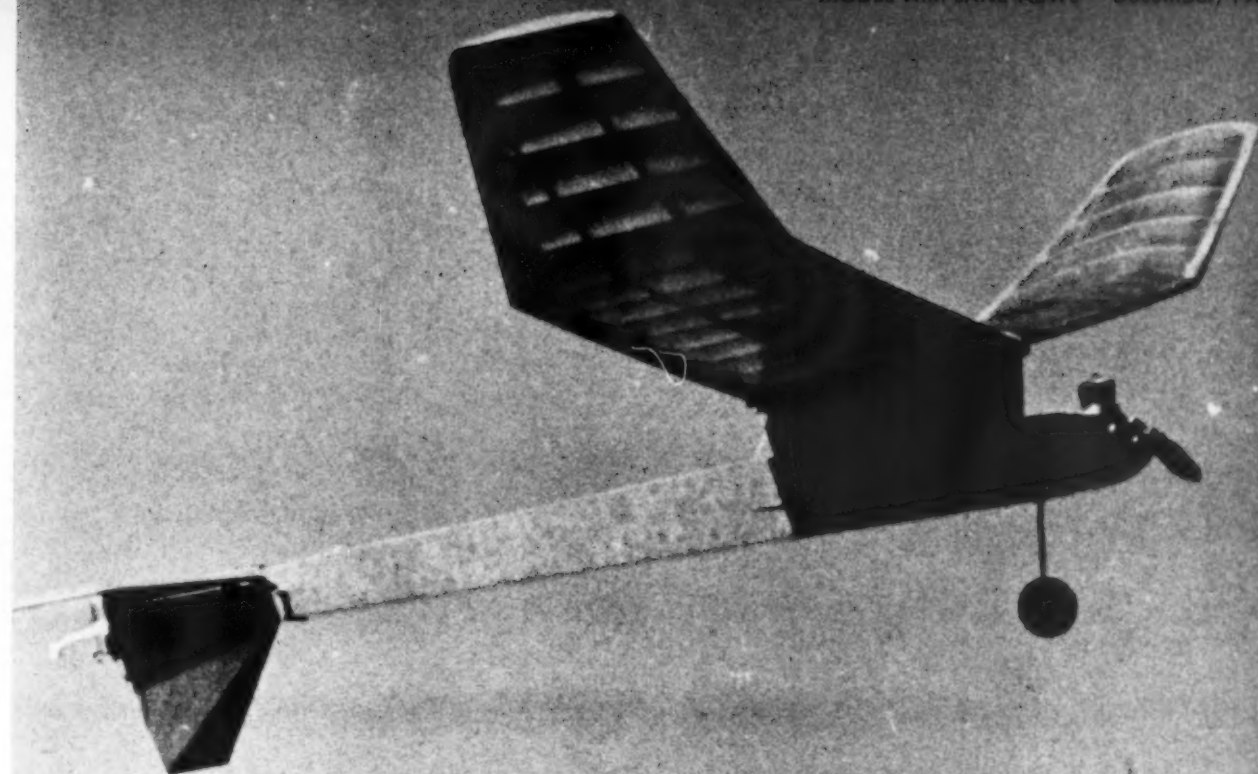
Contains 34 molded plastic parts, 51 finished balsa parts. Prefab fuselage and Monofoil Wing. Decals, etc. \$3.50.

AT YOUR FAVORITE MODEL AND HOBBY STORE

If no dealer near you, add 35 cents for packing and postage on bomber kits and order from address below.

Monogram Models INC ★

3421 West 48th Place • Chicago 32



The author test gliding the AB version. Climb is toward the right and the glide to the left. Weight averages around 24-26 ounces.

The SPACER

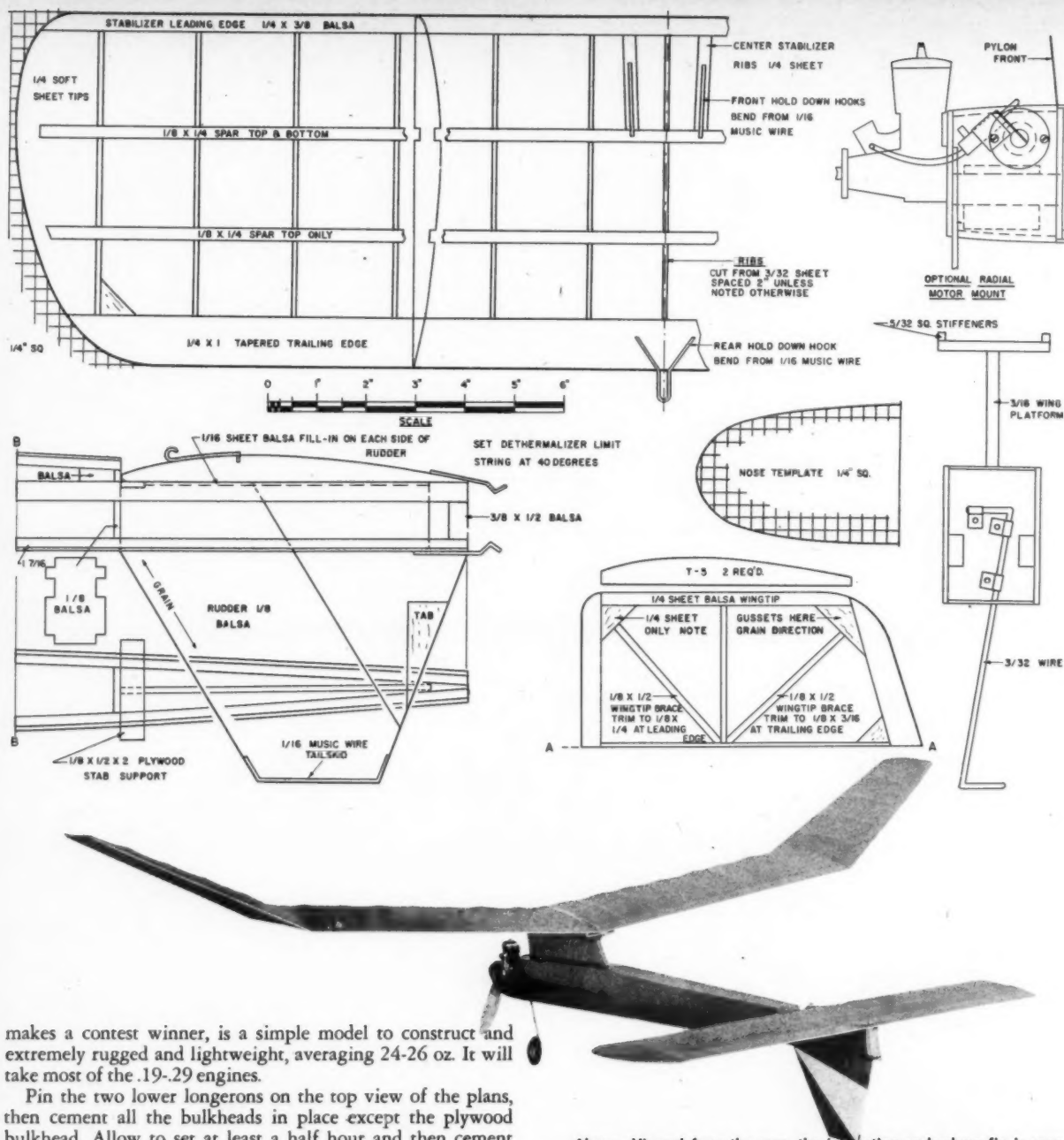
by SAL TAIBI

Winner in really big way is the Class AB job shown here for .19's to .29's. It's the best design published since the Civy Boy.

► The AB Spacer was designed in January, 1953 and since then has compiled a terrific win record of 22 first places that year, mainly in the California area. Among some of the contests won were the following: Bakersfield, Calif., first place, Class A, 35 minutes 29 seconds (AMA Record); San Dimas, Calif., first place, Class B-ROW (AMA Record); 1953 Nationals at Willow Grove, Pa., first place, Class A, Senior; Fresno, Calif. Annual Contest sweep of both Classes A and B; Los Angeles, Calif., first place, Class A, All Pacific Coast Championships; Long Beach, Calif., first place, Class A-B Junior-Senior-PAA Load, using a slightly widened and deepened fuselage to accommodate payload man, stock otherwise. The Half-A Spacer held both Open and Junior AMA Records in 1953. F. L. Swaney, Long Beach, Calif., 26:54, Open; and D. Farnsworth, Jr., Bakersfield, Calif., 20:02 in Junior Class.

The Spacer has the good flying consistency that





makes a contest winner, is a simple model to construct and extremely rugged and lightweight, averaging 24-26 oz. It will take most of the .19-.29 engines.

Pin the two lower longerons on the top view of the plans, then cement all the bulkheads in place except the plywood bulkhead. Allow to set at least a half hour and then cement the top longerons and the 3/16 sq. pylon supports in place; next cement the motor mounts in place and then the 3/16 x 3/8 rear stab longerons. When cementing the stab longerons together at the rear of the fuselage use a square, place it against the lower longerons and then pin the upper stab longerons together while against the square to assure proper alignment.

After this has dried cement a piece of 3/8 x 1/2 balsa at the rear of the fuselage. Cement the 1/4 sheet together for the pylon, let set, and then, after sanding, trace the correct outline on the sheet balsa, cut out and then slide the pylon into the slot in fuselage. Remove the construction from the board, drill the motor mount holes, place the tank in position and fasten with wood screws. The tank must be in the position shown on the plans or the fill and overflow tubes will interfere with the timer shut-off installation. Remove tank temporarily.

Cement the plywood firewall in place after drilling out the landing gear holes. Let dry, and cut away the balsa behind the plywood firewall that the nuts will (Continued on page 45)

Above—Viewed from the rear, the interesting underslung fin is seen to advantage. The fin does seem to cut down wind-ins. Fuselage is sheet.

Below—Two-point contact with ground isn't handicap as plane jumps off before wing tip can touch. Spacers took 22 firsts in California in year.





AIR WAYS

Truly excellent performance of ducted fan Sabre (Sept. '53) built by Phil Fisher, Norman, Okla., is hinted at in this "gaining altitude" picture.



Four K & B .29's power this 78 in. Boeing B-17G, Howard Payne, Kerns-ville, N. C. Finish has 18 coats; turrets, windows, made of clear plastic.



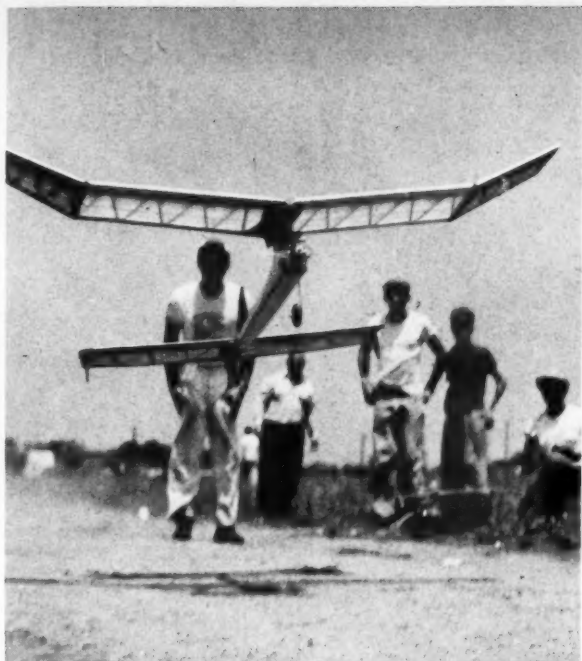
Forty-five per cent of active Flying Aces, Waterloo, Iowa, here present with their "crates," show club's interest in variety of planes from Walker

Firebaby, Jasco gliders, to Hogan free flight and ukie SE-5. Other points of interest, the Tester Avra Baby, Messerschmitt scale, and trophies.

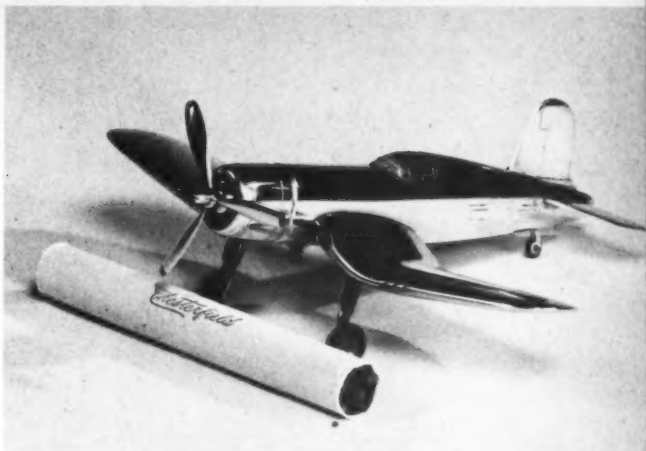
Nelson Swarts, Akron, N. Y., put symmetrical wings on neat D-7, made from plan by Enos and Wright (Dec. '53), otherwise authentic. Fox .35.

Time was when a fellow could be an expert by building a model that flew. But these typical pix from readers show the diversification of types constructed today.





Spectacular take-off of Leon Hertzson's prize winning Hogan at New York Aeronauts' contest, shot by J. Richards. Forster .29 stirred the dust!

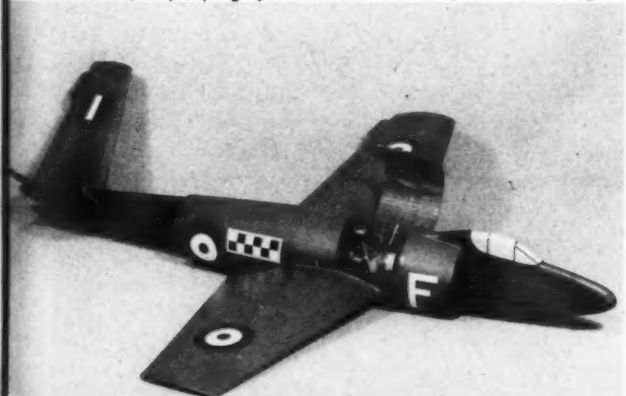


Sub-miniature silver Corsair, best non-flying model at employees' contest held by Republic Aviation Corp. Remarkable job by William Novakovich.



Hell's Angels of Napa, Calif., WAM 1953 Champion Speed Club. Those handsome, eh, contralline stunt jobs, front row, kind of steal the show.

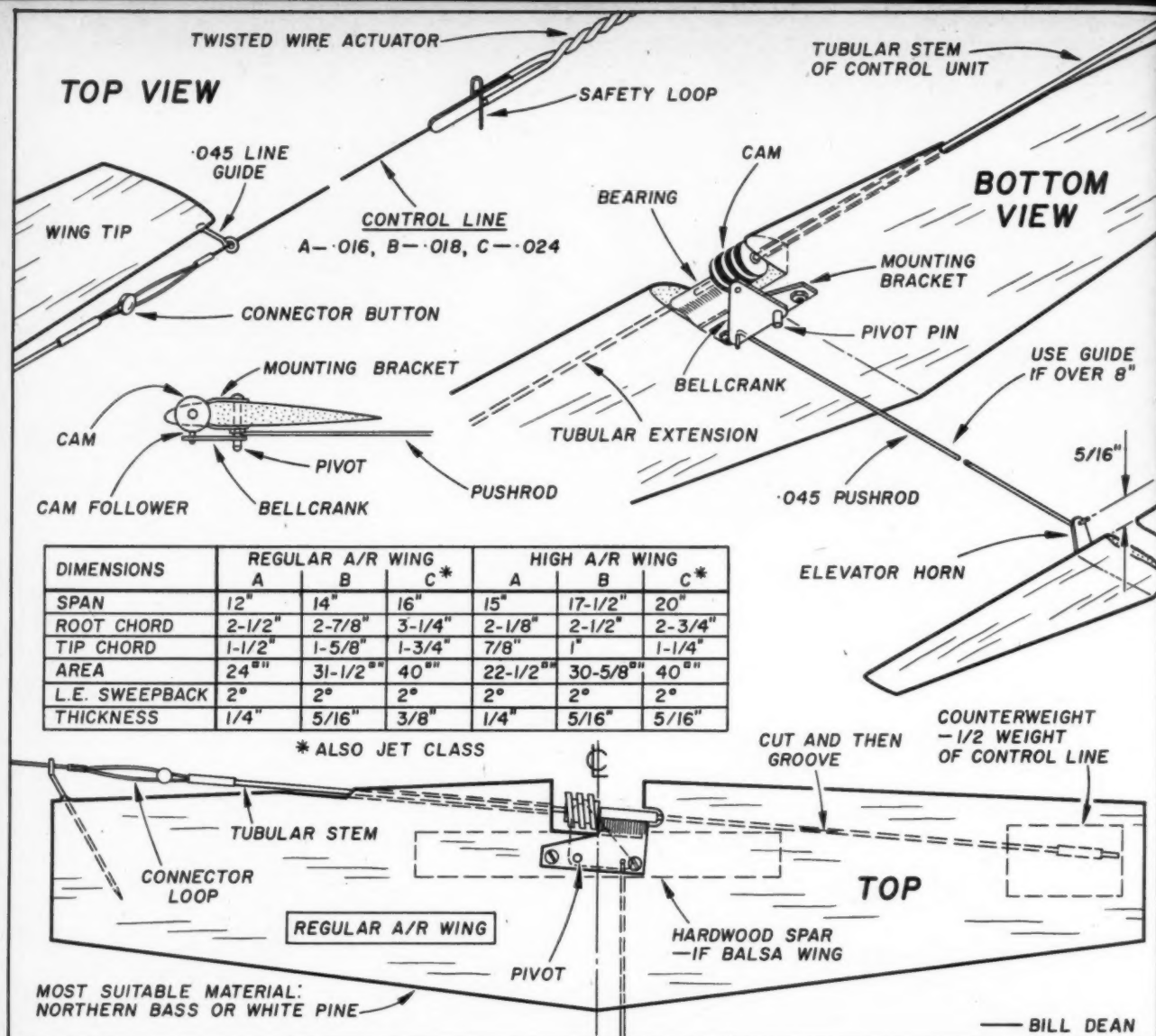
Bill Dean's Supermarine 508 (June '53) ducted fan comes for high praise on accuracy of plan, high performance on Cub .14, and realistic flights.



Best Republic replica of the show was natural wood finished P-47, with its graceful stand. Finely finished piece of work done by Sal Dragotto.

Real looking metal prop highlighted well executed model of Boeing P-26, built by Arthur Wardell. It was first in Republic's fliers division.



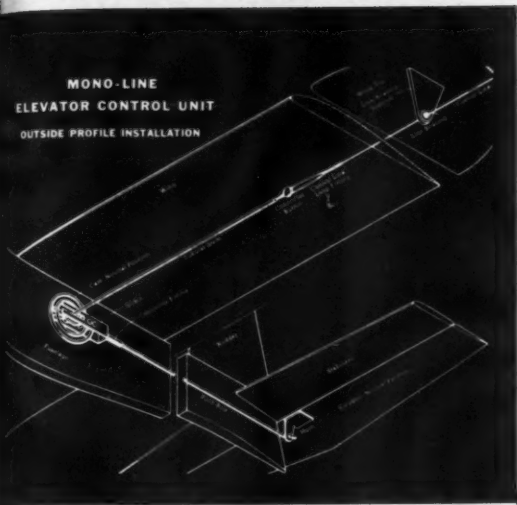


Flying mono-line in three classes at the 1954 Nationals, Bob Elliott took first in B. Top—Details of typical custom-made mono-line set-up.

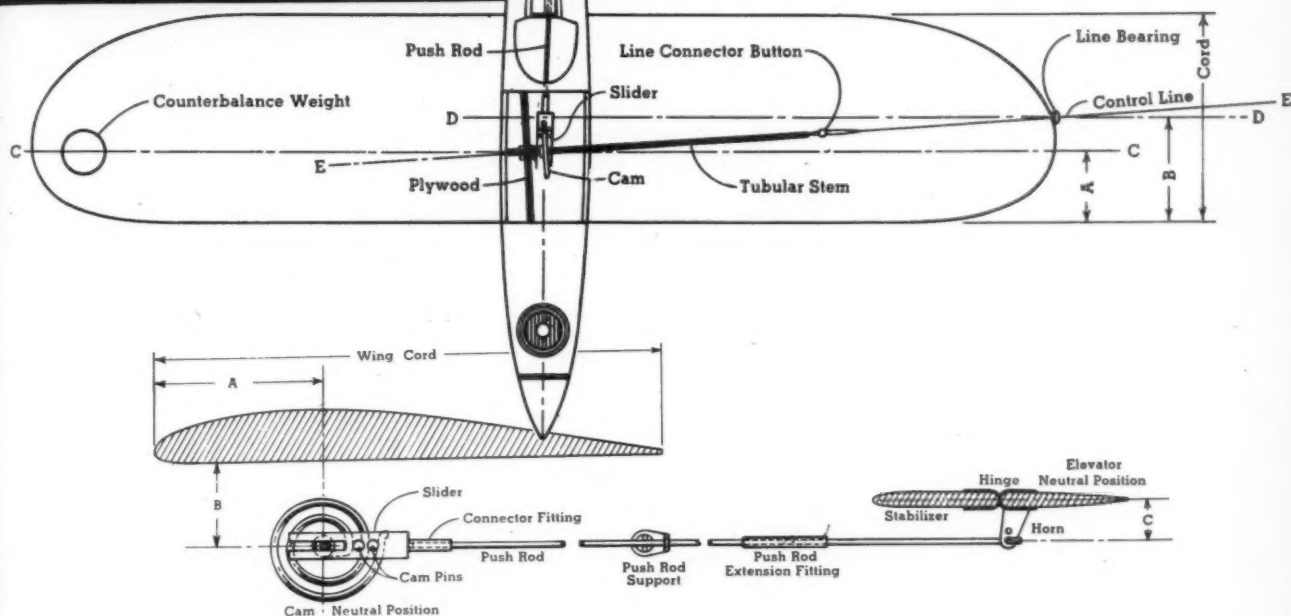
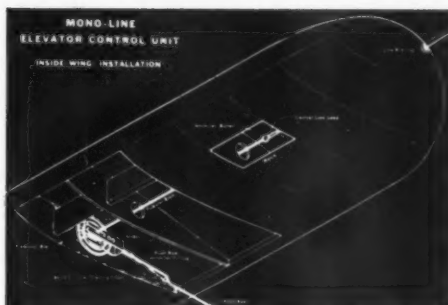


Dale Kinn took several firsts mono-line jet, including Classes AB European AF Meet, Wiesbaden, Germany. Top, opposite—Standard sport set-up.

MONO-LINE
ELEVATOR CONTROL UNIT
OUTSIDE PROFILE INSTALLATION



MONO-LINE
ELEVATOR CONTROL UNIT
INSIDE WING INSTALLATION



ONE LINE

by GEORGE M. ALDRICH

For the past five years various well-known modelers have co-operated with Stanzel in development of special mono-line in speed, stunt. Results look good.

As it was first introduced to the model builder some three and a half years ago, mono-line was not useful in competitive events, such as speed and stunt. Since that time there have been various experiments which have brought its design to the usable level of the contest builder.

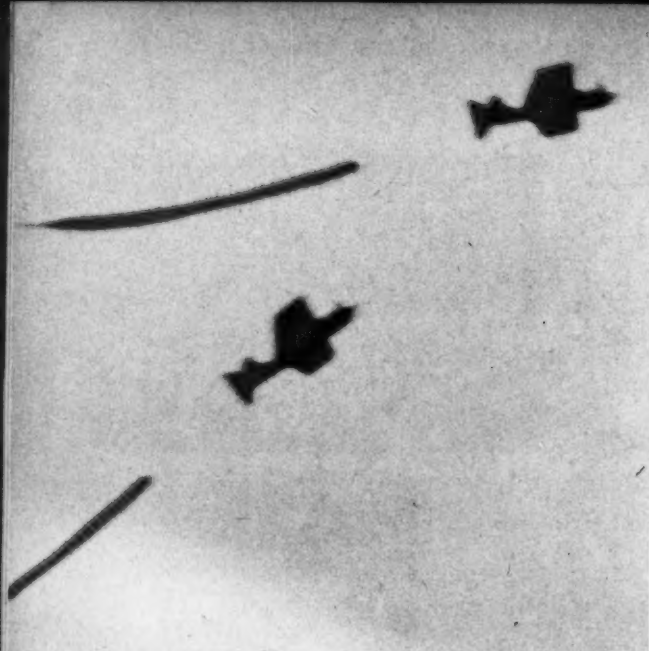
In the photographs and drawings you can see the type of speed model that has been developed after some three years of design. The high aspect ratio wing model pictured has unofficially turned 140 to 141 mph with a stock Dooling .29 and Supersonic 1000 fuel. Jim Clem flew the same design at 139.41 mph at the Southwestern Championships in Dallas last summer. At the same meet, Dimmit Perkins chalked up another first for mono-line in jet speed with 144-plus in 95° weather.

At the 1954 Chicago Nationals, Bob

Elliott took Class B Open and flew A and C mono-line ships there as well. Dale Kirn has won several firsts, including the European AF Meet, Wiesbaden, Germany, with his mono-line jet. Leo Holliday took first at Beaumont, Tex., at 130 mph, using mono-line in A.

For all practical purposes, mono-line promises more to the speed flier than to any other modeler. Frank Zaic's 1952 Yearbook quotes a report made by the Massachusetts Institute of Technology which states that five-sixths of the drag on a speed model is in the lines. By dropping two .016 diameter lines and using one line .024 in diameter, it is entirely possible to pick up 10 to 15 mph on a C speed job that is already capable of 150.

After the first few models were built in early speed (Continued on page 50)



Seeing double? Naw, just a couple of frolicking Stumpies. Either both the ships have elevators full up or a saboteur is wielding a razor blade.



The hand-in-pocket flier in this photograph wouldn't look so relaxed if another job was after that streamer. Not fast, not too slow, the need.

STUMPY

What, you haven't tried combat? Give it a go with this simple, all-balsa flip-flopper for .09 engines. Good trainer or fun ship.



Over, or under, Stumpy is a functional job. One nice thing about sheet construction is that you can dream up your own outlines if area retained.



By J. RICHARDS

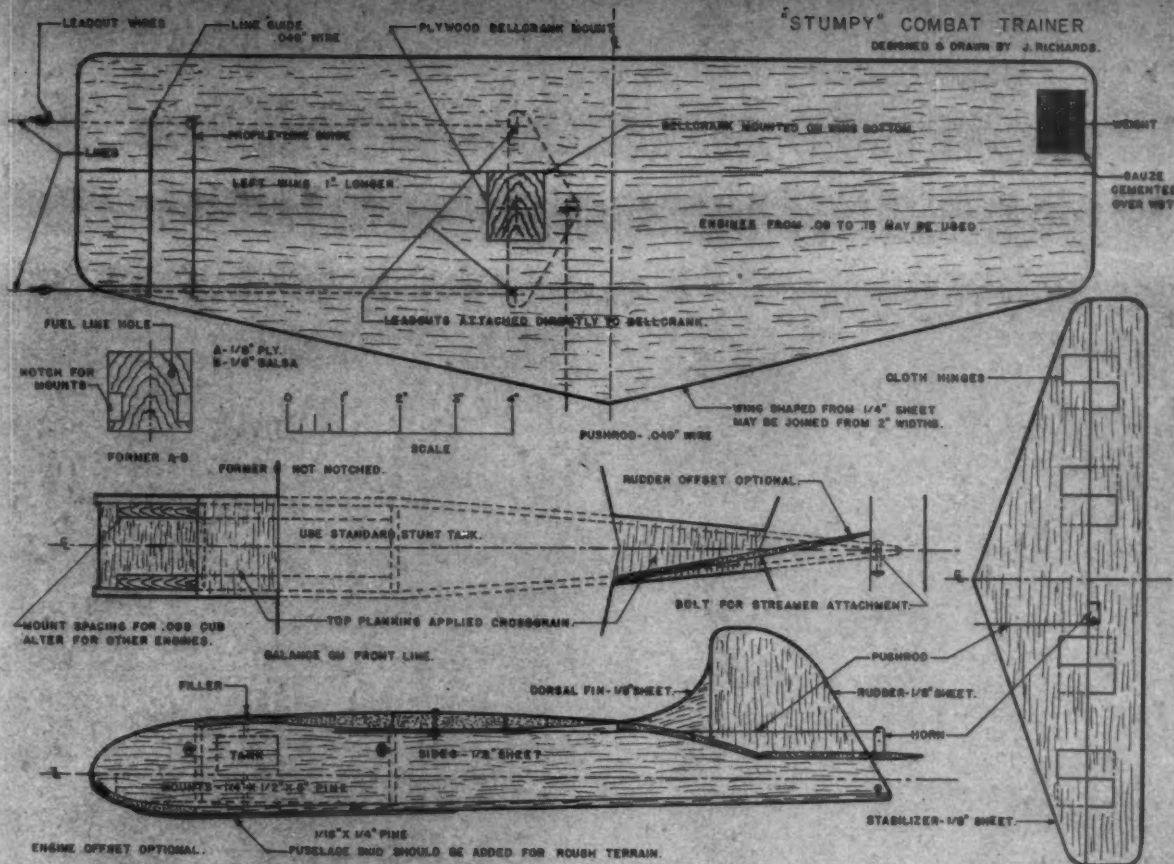
▶ With the growing popularity of combat events at contests, the need arises for a simple combat trainer to utilize engines in the .09 to .15 range. "Stumpy" was designed for less experienced model builders, who definitely seem to prefer the smaller engines. However, the experts also should enjoy this quick-building little stunter.

The original Stumpy proved surprisingly fast with an .099 Cub. Light weight and a slim wing section contribute to speed while giving sufficient lifting area for maneuvers. The all-balsa construction is rugged. Construction can be completed in an evening.

Cut sides from hard 1/8 sheet. If an engine larger than .099 Cub is used, radial mounting is suggested to forestall increase of fuselage width. Cut firewall A from 1/8 plywood. Drill fuel line hole and notch for motor mounts, which are made from 1/4 x 1/2 x 5 in. pine or basswood. Assemble mounts and firewall and install engine. Engine offset is optional. However, it is suggested that the beginner use offset or right thrust, because it will aid in holding the ship out on the lines when in high or overhead maneuvers, or when the wind tends to blow the ship into the circle.

Former B is cut from 1/8 hard balsa. Install engine-firewall unit and Former B in position between fuselage sides, cementing liberally. When dry, bring sides of body together at tail and cement well. Plank bottom of fuselage with 1/8 sheet, grain running from firewall to tail. Use similar stock to plank bottom of nose, cross-grained to take curve. Install standard stunt tank, with feed line on outside of circle and level with needle valve jet. It is quite important to align this feed line with the needle valve body on any stunt ship. If the tank is

"STUMPY" COMBAT TRAINER DESIGNED & DRAWN BY J. RICHARDS.



higher, the engine will tend to run leaner when the plane inverts; or, if the tank is lower, the engine will run rich when inverted. Also, many beginners do not get the tank straight and level. A downhill or uphill tank installation will affect the evenness of fuel feed in various positions of the plane. Drill needle valve access hole in cowl, if needed. Apply fuel-proof dope or butyrate—such as Aeroglass or Testors—liberally around inside of tank and engine areas.

Wing is made from lightweight 1/4 sheet, 6 x 18 in. in size. Three 2 in. widths may be cemented together to form this section. You will notice that left wing is 1 in. longer than right, or outboard, wing. This, combined with the outer wing-tip weight, helps maintain steady line pull. Engine and rudder offsets are additional safety factors that may also be used without reducing speed appreciably. Cut wing to outline and carve to rough airfoil shape. Final airfoil section is carefully sanded in, using progressively finer sandpaper as wing nears completion. It will quicken the sanding operation and prevent accidental "grooves" if a large sanding block is made by wrapping the proper sandpaper around a block of balsa, or around a piece of plywood, flat sticks, etc., and thumbtackling the sandpaper in place on top of the block.

Bend line guide from .034 in. wire and mount in position under left wing tip. Right wing tip is recessed and 1 oz. lead weight installed. Both line guide and weight should be cemented, covered with gauze, and recemented. Top of fuselage and Former B are now trimmed slightly for perfect wing mount fit and wing is cemented in position.

Stabilizer is cut from hard 1/8 sheet. Sandpaper to airfoil shape and install control horn and hinges. One slight deviation from common practice is the mounting of the control horn on top of the elevator. This gives a more positive up-

control because the pushrod is pulling, eliminating any chance of flexing. Cement stabilizer in position on fuselage. Plank top of body with cross-grained 1/8 sheet from firewall to wing and from wing to stabilizer. Cut rudder and dorsal fin from hard 1/8 sheet and sand to airfoil shape. Cement in place on fuselage, with rudder offset optional. Hardwood skid may now be added to bottom of body, if desired. Recess left wing for plywood bellcrank mount, install, and reinforce with cemented gauze. Drill drain holes in bottom of cowl and tank sections. To make ship practically indestructible, wing-to-body and tail-to-body joints may be reinforced with gauze strips impregnated with cement.

Dope entire model with three to five coats of clear, fuel-proof dope, fine-sanding between coats. Non-pigmented color dope may also be used with no appreciable increase in weight. Install bellcrank, 1/16 in. wire pushrod, and stranded leadout wires. A 3 in. bellcrank with multiple pushrod holes is used with pushrod connected to innermost bellcrank hole and outermost elevator horn hole. This gives limited elevator movement and makes first flights easier to handle. Later, pushrod can be moved to other holes to give greater movement. Add tail bolt for streamer attachment. Ship should balance on, or ahead of, front line. If balance is too far aft, nose weight should be added.

The beginner is cautioned to see that the control mechanism works freely. Be sure that dope or cement does not get into the crevice between flippers and stabilizer or that those surfaces don't bind against each other.

First flight should be made in calm weather. Controls should work smoothly. Use full power and launch downwind. If this is your first controlliner, get two experienced friends—one for launching and one for (Continued on page 41)



Capturing first place in Fidelity to Scale was this remarkable Travel Air 2000 by Dave Kulikoff. Took seven months to build. Pipe the ribs.



Rearwin Speedster by Walt Mooney was a good flier. This ship used to be a big favorite in rubber scale events at pre-war Nats. Looks, ability.

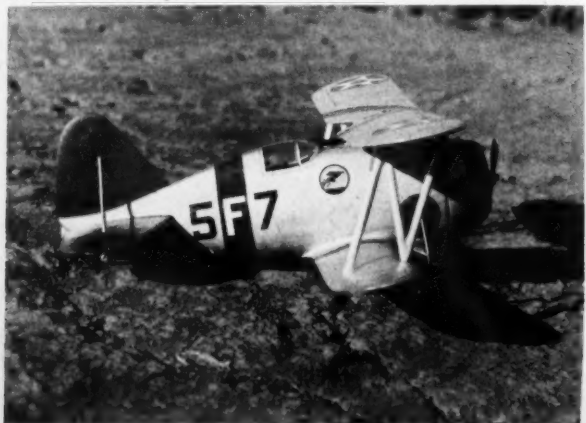


Old-time British Sparrow won first for Hal Cover in combined Junior-Senior. Also trophy most scale-like finish. All control surfaces operate.



Sponsoring club's president, Dan Lutz, and Piper Super Cruiser. Number of these ships entered. No better one for competition. Really flies.

Stubby Grumman biplane fighter turned in many fine flights for Stephen Crow but failed to place. Another contestant flew a successful Me-109.



Ambitious PBV Catalina, Ray Hill with son, pendulum control ailerons, two engines. Spectacular flier but would snap, spin when engine quit.

Foreign Zaunkonig placed third Fidelity Scale for owner Bob Wiehle. This ship duplicated the full span flaps and wing slots of the original.





Chris Kaiser hand-launches his Cessna 140. Even a Cessna couldn't look more like a Cessna, eh?

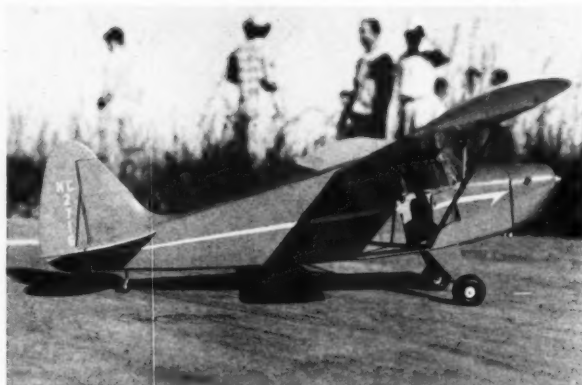
They Also FLY



Entered by only woman contestant, Carol Mooney, English Luton Minor flew well, but did not place.



An extreme amount of detail featured Fiesler Storch, made by A. R. Wilson. Ship a popular subject.



Even the door opened on this Interstate Cadet. Handiwork of Bob Bolling, the Cadet took second place. The Cadet is another years-old favorite.



A trophy winner last year, Gary Witt's Curtiss Robin didn't place. But it is a great model of one of aviation history's most remembered craft.

A huge success was Fifth Annual Flightmasters' free flight scale contest. Forty-four entrants had an amazing collection of ships going back over 40 years in air history, these pictures by John Hutcheon being typical of appearance of the lot. Judging took place one day, flying the next. Scoring based upon motor run divided into glide time, then multiplied by the scale points.

See MAN at Work.

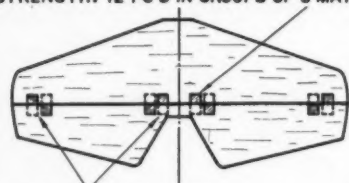
Goggles in the slipstream! Second place winner, Fidelity, Wayne Schindler's Fokker E-3 looked cute.



design detail

Control Hinges

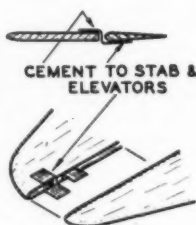
A MINIMUM OF 8 HINGES SHOULD BE USED TO INSURE ADEQUATE STRENGTH. 12 PC'S IN GROUPS OF 3 MAY BE USED ON BIG STABS.



NOTE HINGE GROUPING

TOUGH, CLOSE-WEAVE COTTON FABRICS BEST FOR HINGES OF THIS TYPE. MUSLIN, POPLIN & TWILL ARE RECOMMENDED. AIRCRAFT TAPE AND FABRIC ARE THE MOST DESIRABLE MATERIALS.

EDGES MAY BE PINKED TO PREVENT FRAYING AND IMPROVE APPEARANCE.



CEMENT TO STAB & ELEVATORS

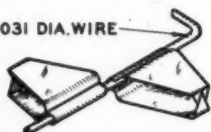


FIG. 1

FORMED TO DIA. OF HINGE PIN

.031 DIA. WIRE

STAB THICKNESS



CEMENT HINGES TO STAB

THIN SHIMBRASS OR VERY LIGHT SHEET BRASS OR ALUM. ARE RECOMMENDED MATERIALS. THICKNESS OF MAT'L SHOULD BE FROM .005 TO .010"

FIG. 3



MUSIC WIRE PIN

GAP BETWEEN HINGES SHOULD NOT EXCEED 1/64" TO KEEP SIDEPLAY TO A MINIMUM.



NARROW SLOTS CUT THRU STAB AND ELEVATOR

BEND TABS OVER AND SOLDER

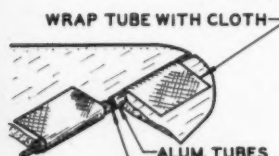
SHIM BRASS OR TIN CAN STOCK ARE RECOMMENDED.

FIG. 5



HINGE SHOWN IS MORE COMPLEX VERSION OF FIG. 6. THIS TYPE PREVENTS LATERAL MOVEMENT OF ELEVATORS MATERIAL CHOICE SAME AS FIG. 5

FIG. 6



WRAP TUBE WITH CLOTH

ALUM. TUBES CLEARANCE BETWEEN TUBE ENDS SHOULD BE KEPT TO A MINIMUM.

1/16 DIA. BRASS OR STEEL COTTER PINS



ENDS SHOULD BE SPREAD AND INSERTED IN DRILLED HOLES IN ELEV. & STAB.

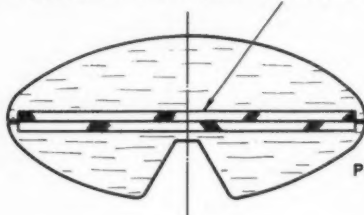
FOR SMOOTH WORKING HINGES TUBES SHOULD BE DRILLED FOR CLOSE FIT WITH PIN.

GOOD ON RADIO JOBS.

FIG. 7

FIG. 8

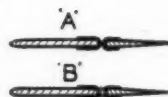
FULL-LENGTH STITCHED FABRIC HINGE



HINGES OF THIS TYPE ARE EASY TO MAKE AND PRACTICAL.

DETAIL "B" ABOVE IS TO BE PREFERRED TO DETAIL "A" FOR STRENGTH

NO GOOD—STITCHES TAKE ALL LOAD



PINKED EDGES

DOES NOT DEPEND ON STITCHES FOR STRENGTH

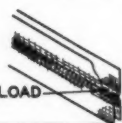


FIG. 2

PRESS & CEMENT IN PLACE



SMALL TABS BENT UP ANCHOR HINGES



KEEP HINGES CLOSE TOGETHER

SLIT ELEV. & STAB

COMMERCIAL VERSIONS OF THIS HINGE ARE AVAILABLE IN MOST HOBBY SHOPS.

SAME MATERIALS AS IN FIG. 3 FOR HOME MADE VERSIONS

FIG. 4

by H. A. Williamson

► The cloth hinges shown in Fig. 1 are far and away the most popular type in use today and for simplicity and strength—for most models—are pretty hard to beat. Another version of the fabric type hinge is shown in Fig. 2. When this type is used, great care should be taken to insure that the hinge is so installed as to depend on the fabric rather than on the stitches for strength.

Metal hinges with music wire pins, such as those shown in Figs. 3 and 4, are suitable for all of the larger type models. Their chief advantage over the fabric hinges is the complete freedom of movement obtainable with this type. While the fabric hinges may become brittle and frayed with age and stiff with dope, the metal hinges offer complete freedom from these problems.

Figs. 5 and 6 illustrate two more types of metal hinge developed primarily for speed models. While they are admittedly a little more tedious to build, it is almost impossible for hinges of this type to fail under even the most unusual flight loads.

The aluminum tube and wire hinge shown in Fig. 7 offers the same advantages as those shown in Figs. 3 and 4 and is recommended for the same model types. In Fig. 8 is shown a novel hinge type, made by linking two small cotter pins together. A very effective arrangement, presenting smooth appearance, free movement and strength, is the result. Works well on the control surfaces of radio jobs too!

END



Thirteen—Shucks, what do we care! For semi-realism and sport flying, the wing and stabilizer tips were given the old one-third, two-thirds shape. Permanent stab requires proper CG—and that helps.

Lazy Bones



Just a big, nice flying job for those who want to make like pilots. Room for gadgets, gismos. For .19, .29.



Compromise on dihedral, visible in this shot, eliminates rocky turn entries, yet allows recovery automatically within 360 degrees without racing or ballooning. Windows are painted, not cut-outs.

Wrapped, double wire gear, with rubber shock cord, stands abuse, provides soft action. In really bad landing, bands break, no damage results. Moderately low aspect ratio wing gives maneuverability.



For those who like them big and lazy, Lazy Bones isn't a half bad airplane. Built lightly—that is, about 5-1/2 lb.—it will climb out realistically on such engines as the K & B .19 or .23, Amco .20 (all of which it has flown with), or similar displacements in any first line engine. It will really perform on a .29 and has had about 60 test flights on a Veco, or 100 test hops in all. The combination of dihedral, side area and vertical tail is one of the happy coincidences that produce good turns, remarkably so since the turn is coordinated well at low speed and low power, where the rudder can be held over without earthquaking results.

Naturally, in all this test flying, both good and, in a minor way, bad, characteristics have been noted. When equipped with movable elevators, large the accompanying weight of torsion area for those who might want to fool with multi-channel and elevator trim, rods, extra escapements, counterweight required several ounces of lead in the nose for really good trim. Therefore, the plans show a longer nose than the pictures. The deep profile area had been used to give a semi-scale appearance—most RC jobs would require legless pilots if scaled up—and to smooth out the turns. But, in a wind, repeated use of the rudder to keep the ship lined up on the final approach subjected too much profile to the direction of flight, slowing down the plane more than is desirable. It was possible to stall out too easily in a gust just off the ground. The profile on the plan is slightly shallower than the test plane.

Speaking of wind, Lazy Bones will fly safely in any conditions that tempt a modeler out of doors—and you know how windy it *really* is sometimes when you get to the field. Don't let it bother you.

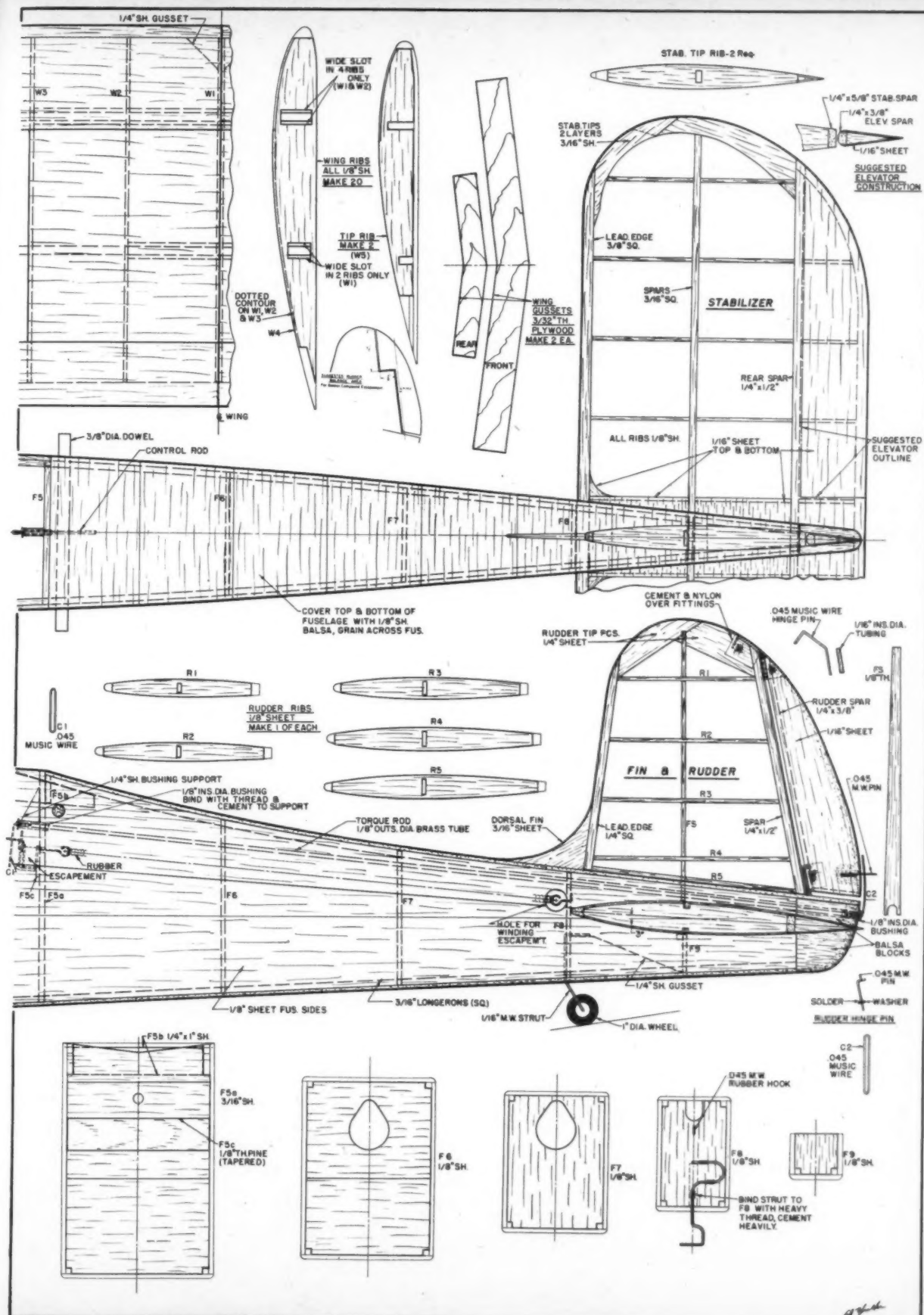
Originally, Lazy Bones had been laid out for multi-channel work but the facts of life being what they are, a little ol' Bonner compound had to take on the task of wiggling the rudder and actuating the elevator drive escapement. Without a balanced rudder, as seen in the pictures, the compound could not hold the 6-1/2 lb. ship—we build heavy, hard wood, you know—in a spiral without the force of the air pushing back the rudder and allowing unintentional recovery. By moving back the hinge line as shown in the detail, and finally adding a big overhang (the latter really did it), the compound would hold in through three or four turns of a spiral.

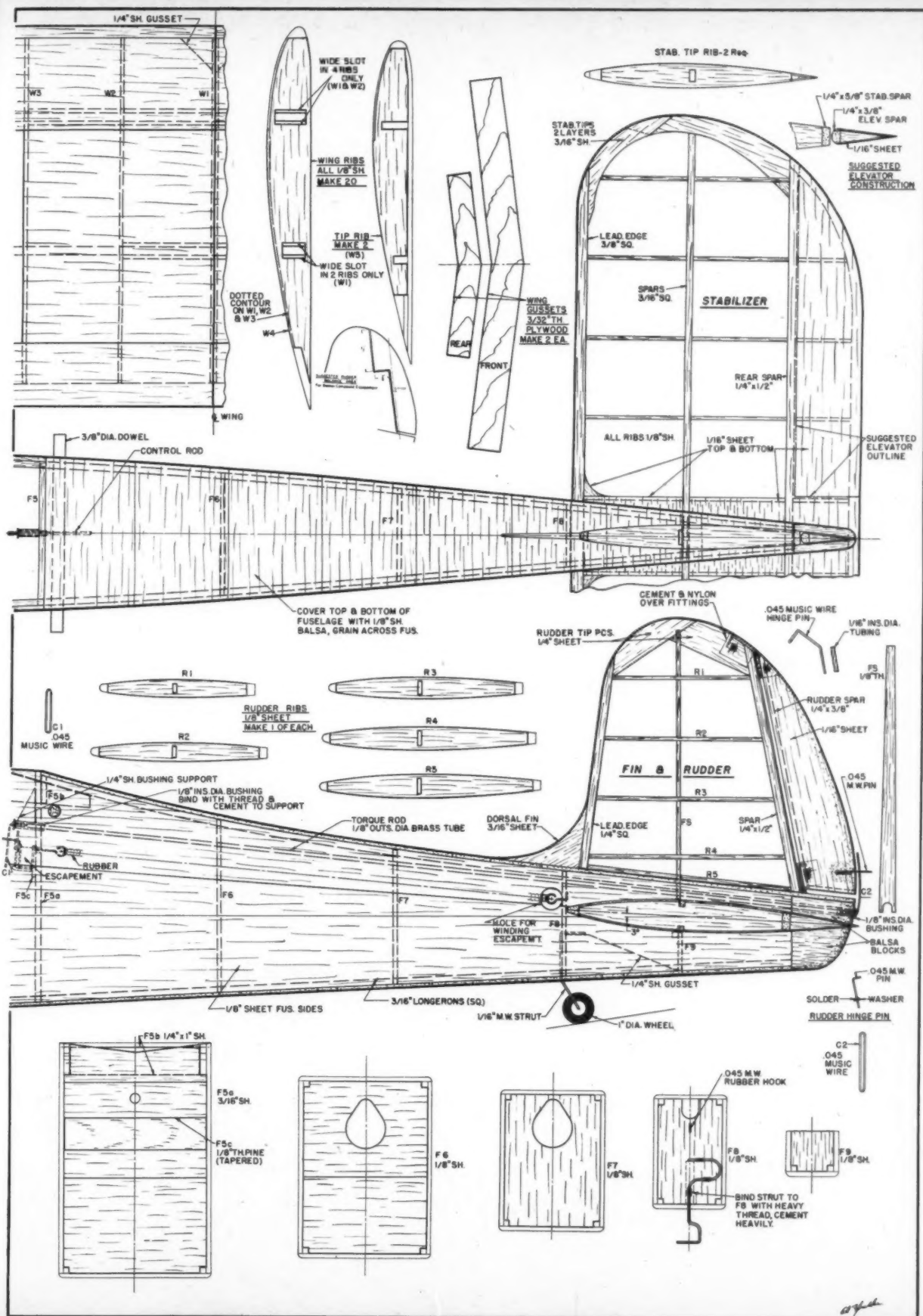
The big problem was moving those wide flippers on such a big job against big air loads with the Macnabb Citizen-Ship escapement. The flippers had to be statically

(Continued on page 44)

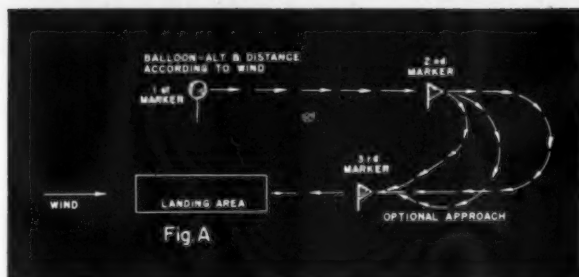
PLANS ON NEXT TWO PAGES



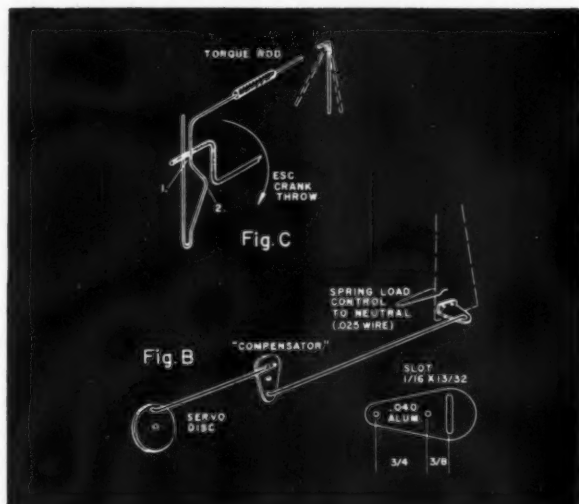




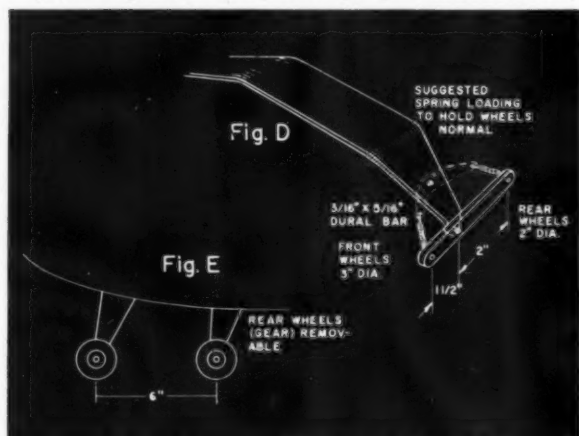
Sou
spe



Southeast Virginia RC group scores points for crossing markers and for spot landing with bonus for good landings. Details are in the article.

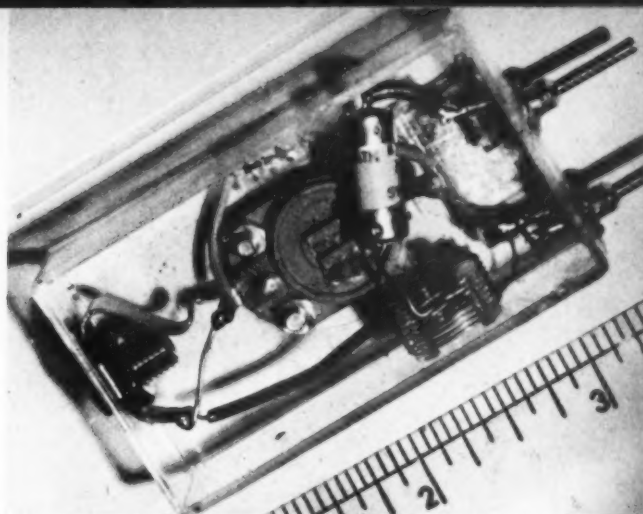
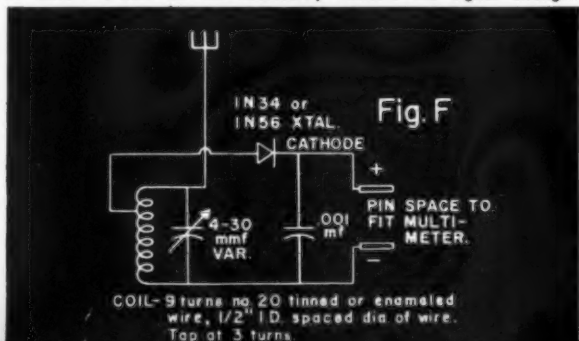


DeBolt's compensator for use with DMECO reduces tail wagging by plane. Simple, but ingenious, is this yoke for giving a differential elevator.



Two types of gear that insure straight take-offs. D is deBolt development of McCullough idea at Nats. E is tandem normal gears by Ernie Kratzel.

Schematic, Bliss field strength meter. Transmitter meters indicating amount of current drawn do not necessarily indicate the signal strength.



Small, light, field strength meter, Pete Bliss, can be used with any meter up to 5 ma. The schematic appears at the bottom of opposite column.

Radio Control News

By E. J. LORENZ

Technical topics, club news, new items. Individuals and clubs are invited to send in their ideas.

► Last month we told of the new improved RK-61 tube which would have a life of 25 hours, based on a plate current of 1.5 ma. Reports, and our own tests, indicate that when used in our two-tuber application, the life can be extended close to 250 hours. This is the equivalent of about two years of average flying, resulting in a negligible cost per flight. In addition, as users of the two-tuber know, the lower plate current of the detector stage allows better control of the discharge by the grid, thus giving greater sensitivity and flights over a longer distance.

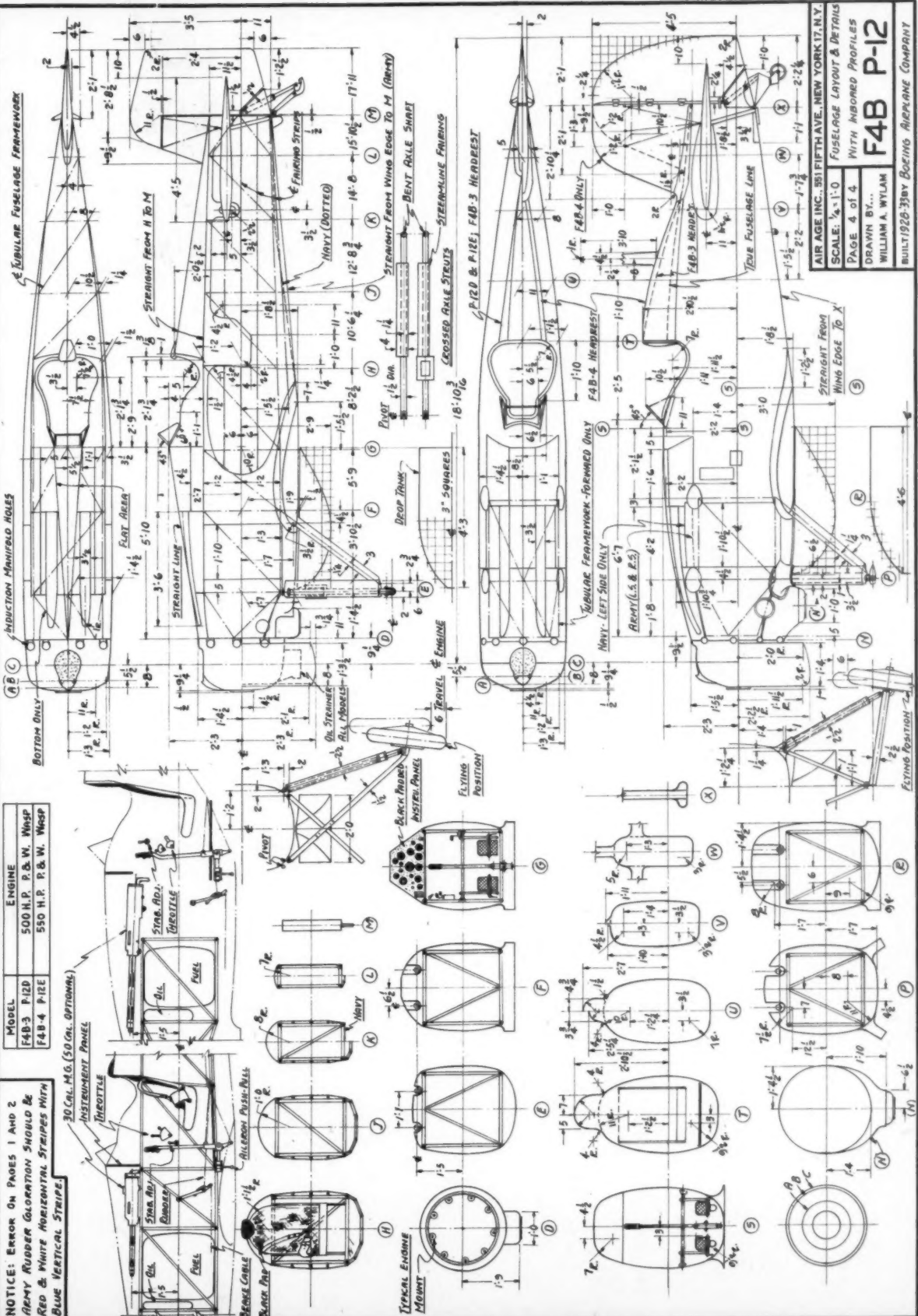
While on the subject of the two-tuber, we'd like to point out some possible causes for improper operation of the set. This is an item we neglected to mention in the article because of its seeming clarity. The antenna coil should be wound in the same direction as the main tuning coil. If the antenna coil is wound in the opposite direction from the main tuning coil, the circuit possibly may give low plate current and loading the tank circuit will be difficult. Another item concerns winding the coil itself, when using CTC coil forms. Do not wind the turns of the coil directly against the terminal rings. This may result in an out-and-out shorted turn if the enamel insulation breaks down and it is often the cause of an RF shorted turn. This results in no super-regeneration and an inactive receiver. On any coil it is desirable to leave 1/16 in. spacing between the outer turns of the coil and the terminal rings when using CTC forms. Incidentally, our new improved two-tuber will feature a lower idling current and will allow the use of the sub-midger 22-1/2 volt batteries. Field tests have shown no adjustments will be needed for about 25-30 hours of operation. No tuning adjustments have ever been made in the past 150 hours of operation.

Hal deBolt of deBolt Model Engineering Co., Box 73, Williamsville, N. Y., has come up with a modified control linkage for use with his servo units. Fig. B shows this unit which features the advantage of putting the control surface into position only when the servo has reached the control position.

(Continued on page 47)

NOTICE: ERROR ON PAGES 1 AND 2
ARMY RUBBER GLORATION SHOULD BE
RED & WHITE HORIZONTAL STRIPES WITH
BLUE VERTICAL STRIPES

MODEL	ENGINE
F4B-3 P-12D	500 H.P. P.B.W. WHP
F4B-4 P-12E	550 H.P. P.B.W. WHP



AIR AGE INC. 351 FIFTH AVE. NEW YORK 17, N.Y.
SCALE: 1/4" = 1'-0"
FUSELAGE LAYOUT & DETAILS
PAGE 4 of 4
WITH INBOARD PROFILES
DRAWN BY...
WILLIAM A. WYLAN
BUILT 1926-33 BY BOEING AIRPLANE COMPANY



From SANTA..

**WORLD'S FINEST MODEL KITS
FOR YOUR XMAS GIFT LIST!**

Luxurious CHRIS-CRAFT 63' Motor Yacht

**DESIGNED FOR
RADIO CONTROL!**

Exact replica of the fabulous Queen of the Sea...
ultimate realization of every model builder's dream!
Like all Sterling kits, completely prefabbed!

Other Sterling Radio Control Models

CHRIS-CRAFT 32' CRUISER KH B-6M.....	\$ 9.95
Deluxe 34 pc. Scale Marine Fittings, Set B-8F.....	3.50
CENTURY SEA MAID '20' KH B-8M.....	7.95
Deluxe 35 pc. Scale Marine Fittings, Set B-8F.....	3.95
CHRIS-CRAFT 30' CATALINA KH B-7M.....	11.95
Deluxe 66 pc. Scale Marine Fittings, Set B-7F.....	4.95
HARCO '40' DELUXE CABIN CRUISER KH B-10M.....	10.95
Deluxe 64 pc. Scale Marine Fittings, Set B-10F.....	4.50



Length 40" Beam 10 1/4"
For Class A, B & C Engines Kit B-11M..... \$18.95
Deluxe 108 pc. Scale Marine Fittings, Set B-11F..... 7.50

Chance-Vought

CORSAIR F4U-1 SCALE CONTROL LINE MODEL



Authentic replica of the
world-famous U.S. Navy
carrier-fighter, the incom-
parable CORSAIR...de-
signed for U.S. Navy Carrier
Event Flying!

Span 36" Length 27 3/4"
For Class B & C Engines—
Kit C-9..... \$5.95

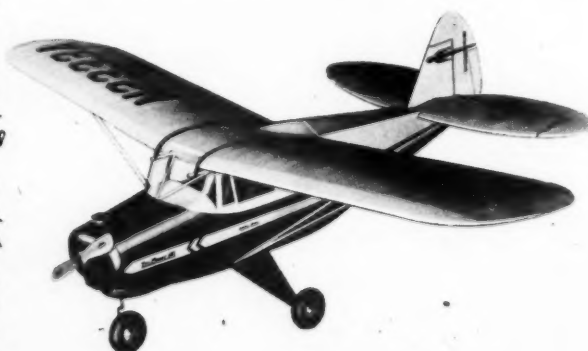
Other Sterling Scale Control Line Models

THE MONOCOQUE KH C-1.....	\$4.95
HOWARD PETE KH C-2.....	5.95
MR. MULLIGAN KH C-3.....	4.95
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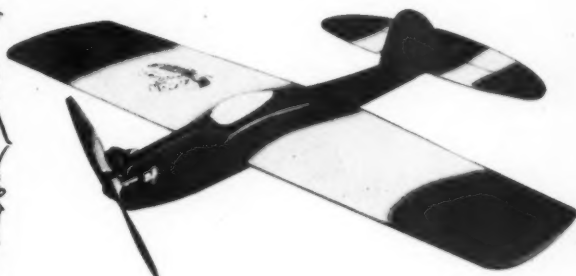
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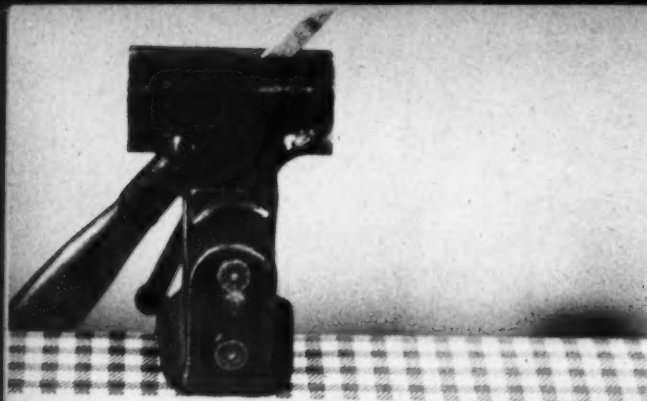
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Two canopy forms and general set-up for holding them during the forming process. The forms are skewered on knife blade held in small vise.



Drawing hot celluloid over form covered with thin film of vaseline. Coating prevents sticking, aids drawing material down in one even motion.



Head-on view Heinkel 162 "Folksjaeger," showing neat appearance of the true scale celluloid canopy made by the methods described in article.

MOLD YOUR OWN

By DON A. RIVERS



It has been said that bald-headed modelers get that way from tearing out their hair while looking for canopies to fit dream ships. Or in trying to make them. And all the time it was so easy. See!

► "Well... what do you think of her?"

Ted cocked his head toward the center of the plant floor. Curiously I turned my eyes in the direction he'd indicated. There, lightly poised on its assembly cradle rested the fuselage of one of the most beautiful sailplanes I had ever seen.

Words failed me. All that came out was "... boy... oh boy!"

Ted grinned. He knew what I meant... what I felt in those first few moments. He knew what everybody feels at the sight of a graceful plane on the ground or in the air.

For 20 minutes I loved that sailplane: studied and caressed each fitting, curve and joint as Ted explained its intricacies. At last he patted the long, drum-tight wings and inserted steel taper pins into spar fittings which locked them in flying position. Everything was there, intact—but with one exception. No canopy. Finally I mentioned to him that the open cockpit left a broken line along the fuselage and how was this going to be taken care of?

"We mold 'em," he answered. "Come over here and I'll show you."

There in one corner was a wooden stand which rested a smoothly rounded form, obviously, from its shape and appearance, the mold for the necessary canopy.

"You mean you're actually going to tackle a project like that yourself?" I exclaimed, amazed. "You've got more com-



Profile of the same Heinkel reveals the compound curves of the canopy. Almost all complex forms can be mastered successfully with this method.

The secret is in proper thickness celluloid, the correct temperature and duration of heating. With an assistant the drawing is quite easy.

pound curves in that form than I could count. How can you do it and still keep the material visually clear and free from distortions?"

"Well, it's really fairly easy," he answered, "if you handle the sheet right and have the proper clamps for the job. Now over here is my special oven for heating these big plexi sheets. We bring the material up to a predetermined temperature. Then, with the help of three or four assistants, quickly remove it, place it over the form which has been covered with a thin film of oil, and draw it down tight all around with these special clamps. If she doesn't work the first time, back she goes into the oven for a reheat, and we try her again 'til we get exactly the canopy we want."

In answer to my dubious expression he walked over to a nearby bench and drew a cover cloth from a large bulge. There it was—the finished canopy—clear as crystal, gleaming in the soft light. It had been polished to shine like glass and the eye could see no bubbles or drawing distortions. It was strong and light and gave the utmost visibility. What's more, the streamlined bubble harmonized perfectly with the overall design of the plane. Another canopy, made of individual panes or of angular pieces, would have jarred violently in its place.

Some 30 minutes later I was homeward bound and thinking, "If it can be done for full scale aircraft, why can't that method be adapted to fashion miniature scale canopies for model airplanes?" The idea obsessed me so that I decided to try it the next day, it being Saturday, and made up my mind to attempt molded enclosures for two models under construction.

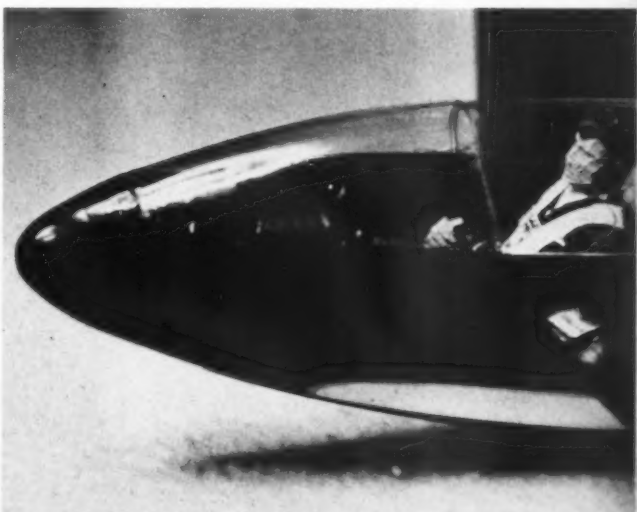
One ship was an original design sailplane and the other a jet Heinkel 162 "folksjaeger." Both planes required canopies that could not be made in any ordinary way without looking downright "tacky": a problem which has plagued me, and a million other model builders (no doubt), for years.

Both models had fuselages carved from solid balsa blocks and hollowed to the thickness of an eggshell. The cockpit enclosure section had been fashioned with the body as a unit, but left solid, and cut away from the finished shell when completed. These two enclosure sections I proceeded to work on until I had built up an ultra-smooth, hard surface, on each, as free as possible from pits, specks or abrasions. Several applications of sanding-sealer, rubbed down with extremely fine sandpaper, soon brought about the desired results. These were set aside to await the time when they would be needed as mold forms for the desired canopies.

Next, several sheets of celluloid were obtained from the local hobby shop and cut into small sections approximately 4 x 4 in. These were to become test units from which I would eventually ascertain the proper (Continued on page 35)



Clear, distortion-free canopy made one piece for this original design sailplane, though longer than most canopies, shows what can be done.



Looks just as good close up, too. Matter of fact, note how the smooth curve of the canopy top blends nose into the fuselage line of the ship.

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T R A D E S H O W

MONTHLY REVIEW OF NEW PRODUCTS, OTHER INTERESTING ITEMS WORTH ATTENTION



► **Hellz Fyre Speed Fuel:** Production of this hot fuel had to wait until plug capable of taking the extra high internal pressures was developed, states Cheminol Corp., Rivera, Calif., and Middletown, Del. Recently added to the regular line of O & R fuels, the new premium Hellz Fyre costs \$1.25 per pint.

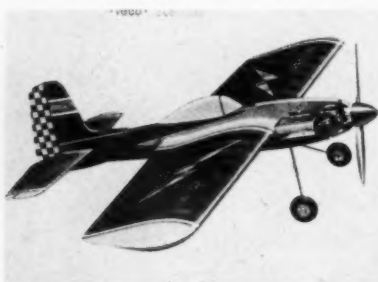


► **Zing:** One of the old Top Flite favorites recently reintroduced, this is fully prefabricated kit billed as a speed and contest model. The wingspan is 23-1/2 in.; length, 22. Engines range from .19 to .49, according to Top Flite Models, Inc., 2635-45 S. Wabash Ave., Chicago 16, Ill. Price-\$4.95 at hobby shops.



► **Aero Gloss Spray:** No paint brushes to clean, smoothest possible finish among advantages of spray finish, claims Pactra Chemical Co., 1213 N. Highland Ave., Los Angeles 38, Calif. Available in various colors, this dope is hot fuelproof. Trigger valve is reusable. Can contains 12 ounces and-sells for \$1.95.

► **Veco Tomahawk:** For sport and combat flying this U-control profile type fuselage model has 40 in. wingspan. Takes engines of .19 to .35 cu. in. displacement. All parts are



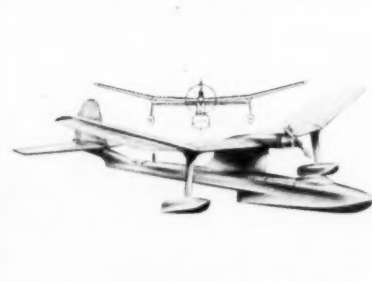
prefabricated. With profile jobs firmly established for combat and training, the Tomahawk is welcome addition to the field. Kit is a product of the Henry Engineering Co. of Burbank, Calif. The retail price is \$2.95.

► **BWM Diesel:** Another "international class" engine is the BWM .15 cu. in. Diesel, made by Manfred Gocking. Features include an inclined needle valve to avoid skinned



knuckles, T-connection to spray bar to eliminate fuel line kinking. Weight is 3-1/2 oz.; power, .23 hp at 12,000 rpm. Chrome nickel steel shaft, cylinder. Moen Trading Co., 225 W. 34th St., New York 1, N. Y. \$13.75.

► **Sea Cat:** Designed by Henry Struck, as featured in August MAN, now manufactured by Berkeley Model Supplies, West Hempstead, N. Y. Outstanding take-offs on either land

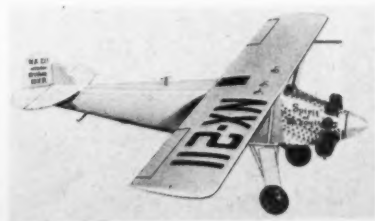


or water. For .15 to .25 engines, has a 68 in. wingspan. Formed metal ring cowl, prefabricated and shaped parts. Hull design is based upon NACA planing hull developments. Detachable two-wheel landing gear. \$7.95.

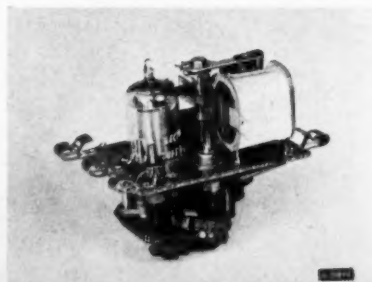
► **Regulus Rockets:** Manufactured by American Telasco, Ltd., 166 Spring Rd., Huntington, N. Y., these bright-colored, die-cut balsa profile replicas of the Navy guided missile come three in a box for 25¢. Rubber band catapulted, these rocket gliders can be made to maneuver at speed by warping surfaces.



► **Spirit of St. Louis:** America's most famous plane is duplicated here in U-control form by Scientific Model Airplane Co., 113 Monroe St., Newark 5, N. J. For .099 to .23 engines, states the manufacturer, with a wingspan of 26 in. Hardware, formed metal mount, carved balsa fuselage, wheels. \$4.95.



► **Citizen-Ship Receiver:** Vernon C. Macnabb's 27.255 mc receiver weighs four oz. with Sigma 4F relay. Tunable for sensitivity as well as frequency. Intended for rubber strand mounting by corner clips. Did well on check tests. Made by Citizen-Ship Radio Corp., 909 Westfield Blvd., Indianapolis, Ind. \$24.95.





DESIGNED BY **CARL GOLDBERG**

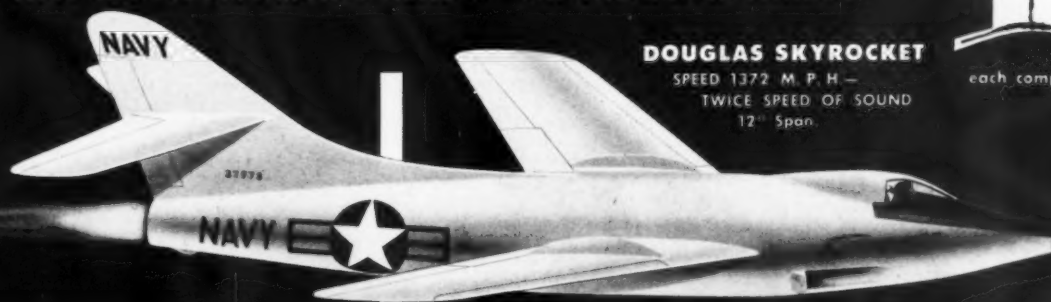
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C. ESCAPEMENT: 100% reliability due to robust and accurate construction of claw and rotor. Special double winding and current-saving device increases battery life. A feature first developed by E. D. Weighs only $\frac{3}{4}$ oz. Uses 3 pen cells. **\$5.50**

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P. G. F. CHINN

by P. G. F. CHINN

Royal Air Force Championships

One of the more notable annual events on the European contest calendar is the Royal Air Force Model Aircraft Association's two-day Championships. Good organization, good equipment and a high standard of modeling are features of this meet. Add to this the enjoyment of a get-together, with the RAF as host, and the Championships are an event not to be missed if one should be fortunate enough to receive an invitation. This year it was our pleasure to attend the meet as one of the judges, together with E. F. H. Cosh (Model Aircraft magazine), C. S. Rushbrooke (Aeromodeller magazine) and Max Coote, who is technical secretary of the SMAE, Britain's AMA.

Unfortunately, continuous bad weather for many weeks previous to the event had caused many setbacks and resulted in numerous untested models and last-minute withdrawals and the over-all standard of flying was, in consequence, not so high as would otherwise have been witnessed. The general level of workmanship, however, was very high and the scale and unorthodox events, in particular, attracted many outstanding and novel models. Winner of the scale *concours d'elegance* was a beautiful cream and green Luscombe Silvaire by Flight-Lieutenant Coutts-Smith, powered by a Mills .08 cu. in. motor. Best RC flight was by Senior-Aircraftman Lock, whose five-year familiarity with the same model enabled him to land it, after a circuit flight and without motor control, within five yards of the spot. Winning model in the free flight event was a replica of J. A. Gorham's "Vertig-O," proxy-flown to fourth place in the New York FAI Champs, while Gorham himself, flying in the only event open to civilians, won the Thurston Trophy for Wakefield rubber.

Simplified RC Actuator

Most RC control actuators have been of the "escapement" type in which the power to move the control surface is provided by a rubber or clockwork motor, while the electromagnet merely controls the movements. This is a legacy from the days of big and heavy

FOREIGN NOTES

A monthly world-wide round-up of technical developments, designs, significant industrial products.

RC jobs where plenty of power was often necessary to move large control surfaces against the airstream. The escapement is a good system, but, for small models, something simpler is sometimes more convenient to fit and, to take care of this need, Woodside Model Supplies of Croydon, England, have introduced their Ruddermag unit. This is a simple development of the Pathfinder magnetic actuator described in July Foreign Notes. It is just a simple one-way electromagnet which will operate on 1-1/2, 3 or 4-1/2 volts, but it also embodies a device which cuts the motor automatically if anything goes wrong. Should be eminently suitable for beginners at RC.

Jap Engines for Brazilian TR

Unusually easy hand-starting of the Japanese O.S. 29 motor makes it a favorite for team racing in Brazil, reports A. Arantes of S. Paulo, where O.S. 29's have won every race held to date. Other popular engines are Fox, Veco and K & B. Good example of Brazilian team racing art is K. Ueno's contest-winning Bonzo, modeled on Steve Wittman's famous racer. Using an O.S., this job averages 50 laps per tankful at 87 mph. Races, incidentally, include 100 lap eliminator with a 150 lap final, and employ 60 ft. lines.

New British .049 for U.S.

The first British engine specifically designed for the American market has now passed prototype stage and will be available shortly. Manufacturers are Davies-Charlton Ltd., makers of the Allbon and DC range, which includes the well-known Allbon-Dart and Allbon (world's smallest) Bambi. New job is a compact, lightweight Diesel of .049 cu. in. displacement: an odd size in Europe but one which puts the engine on a level footing for comparison with American .049's.

New Relay Makes Contact

Steve Fairbrass, ECC designer, tells us that his new P.100 polarized relay (available from American Telasco) has earned him a contract from a British government department. Good work! Useful orders like this keep prices low for

Twin Jetmaster 150's power this outstanding model of Britain's Handley-Page Victor, four-jet bomber. This unusual scale jet was designed and built by Flying-Officer D. H. Mills, seen in the photo.





German WAF .30 Diesel for RC. Long carburetor replaceable by a special unit for four speeds. model builders. P.100 relay is a super-sensitive high speed instrument of compact dimensions and weights 1 oz. It is claimed to operate on a current change of only 20 milliamps and to be capable of functioning at a rate of 90 cycles per second. Following the fashion set by ECC receivers, it is enclosed in a neat molded plastic case.

Aussie Hydros Popular

The noted Australian Newtown Model Aeronautical Association (they took 22 places out of 33 in the recent Queensland Championships) went hydro flying on July 25. Resulting activity stopped passing traffic to the extent of 100 cars. Arthur Gorrie reports that his Mills .045-powered flying boat put in no less than 24 flights. An interesting model was a Jetmaster-150-powered flying boat by Bond Baker which lifted off the water after only a 6-ft. take-off run.

Rosy Future for Outboards?

Judging by the immense enthusiasm everywhere aroused where we have shown our Allyn outboard, we hope it will not be too long before European engine manufacturers follow the lead given by Allyn and Atwood and try to turn out something as good. They will not have an easy task.

Since Europeans favor the Diesel and have several small shaft-valve model airplane motors which are of suitable displacement for an outboard power-head, it seems probable that they will attempt Diesel outboards. We feel, however, that they would do well to switch to the glow plug type unit for a start. The Diesel can undoubtedly offer greater power in these sizes and would overcome the glow plug motor's awkwardness (particularly noticeable when operating boats) of having to hook up a battery for starting, but it has a couple of disadvantages which, for popular use, outweigh, in our opinion, anything so gained.

(Continued on page 49)

Superb scale DH Tiger Moth, built by S.A.C. Lock. In RAF trainer yellow, Elfin 1.8 cc Diesel.



Announcing an entirely different kind of model plane engine...

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TURB-O-PROP

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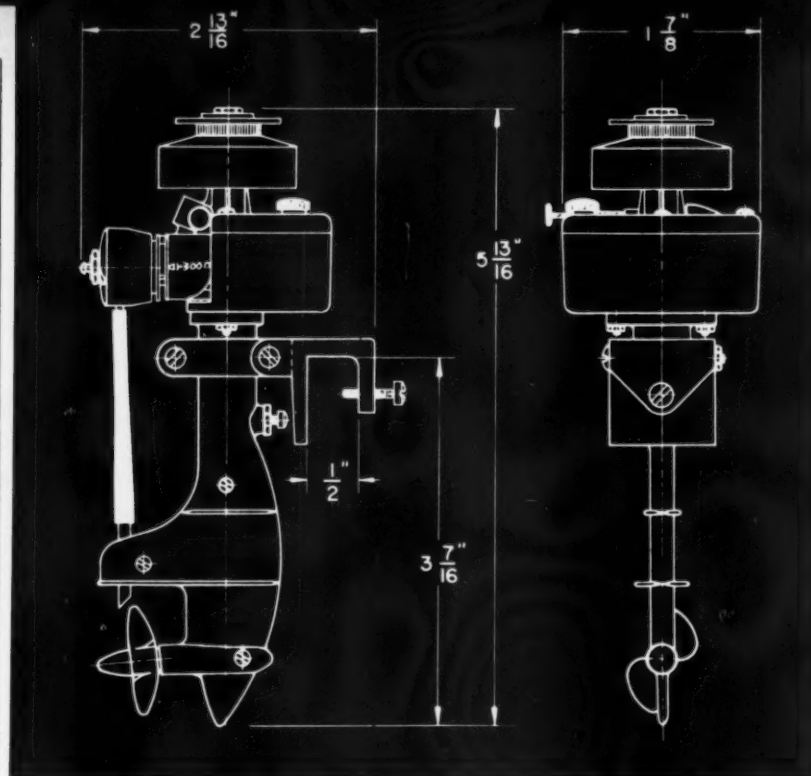
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ENGINE REVIEW



Atwood Outboard

By E. C. MARTIN

One of the past year's most exciting engines was Atwood's unusual, scale type boat outboard.

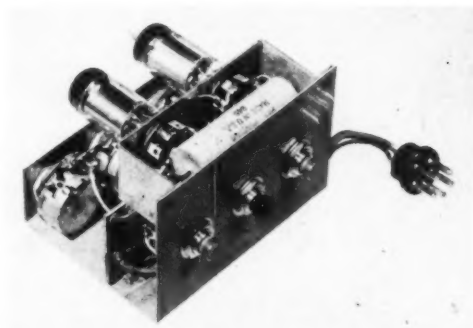
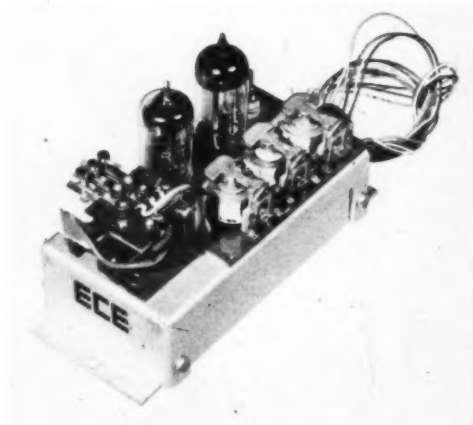
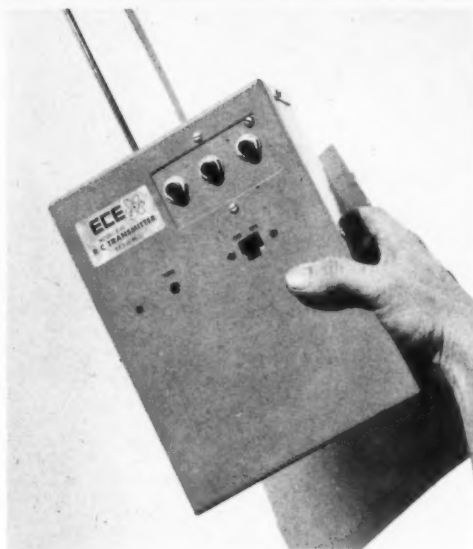
There are usually half a dozen ways of doing everything in engineering and the subject of this month's test is an illustration of the aptness of this statement where outboards are concerned. The recently tested Allyn Sea Fury followed full size practice in its lower end by using bevel gears to convey the drive around the bottom corner and, incidentally, made a very nice job of it. The Atwood engine will inevitably be compared with the Sea Fury by most hydro fans, and since the value of an engine test lies in its comparison with tests of other engines, we have no choice in this case but to refer to the previously tested example. The Atwood employs another of the half dozen ways by conveying its drive by flexible cable.

This is one of those cases where it is possible in an engine test to tie down the pros and cons to one single feature of the design. Both power heads are adaptations of successful aircraft engines of identical displacement which have been tested in that form in these columns. The figures show that, while differing in detail design, their performance is fairly evenly matched. The method of adapting and mounting them for marine use is also very similar, so that the fundamental feature of most interest is how successfully the urge gets from the back end of the crankshaft to the prop. Is the power loss entailed in flexing a flexible shaft more or less than that incurred in bevel gears and extra bearings?

However, let us first run through the general construction of the new Atwood and look at the details. Basically the unit consists of aluminum pressure (Continued on page 53)

it's NEW...it's NEWS!

From the Home of the ATOM



These popular, precision engineered units are still available

ECE 2-A Receiver	\$12.50
ECE 4-A Receiver	12.95
ECE Universal Installation Kit	1.98
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The Cold Facts About the Hottest Three Channel $\frac{1}{2}$ Equipment Available to the Contest Flyer or the Sport Pilot

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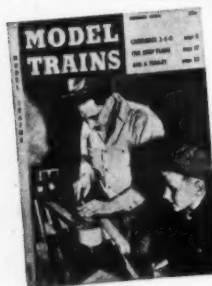
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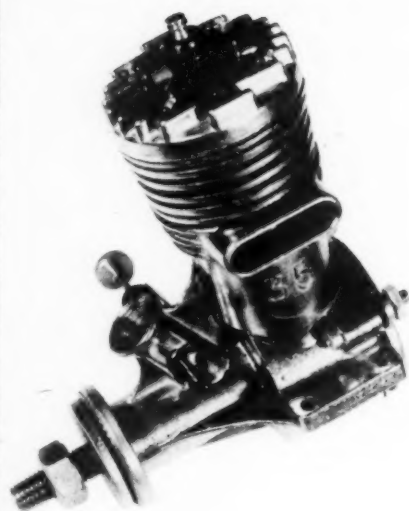
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Engine Review



Veco .35

By E. C. MARTIN

Like their .29, Veco's new .35 engine shrugs off overheating.

► In both external and internal appearance the Veco .35 is identical with the recently tested .29 (MAN, Apr. '54). The increased displacement is derived from what Detroit calls the "Reamer Technique" and simply means that the bore has been enlarged with the stroke remaining unaltered. However, closer examination reveals several detailed modifications designed to handle the increased torque and meet the induction capacity of the larger cylinder.

A heavier section conrod in what appears to be a different aluminum alloy is anchored to the piston by a slightly longer wrist pin, and the piston itself has longer wrist pin bearings. Although the port heights and timing remain the same, the piston baffle is .040 in. higher, and the combustion chamber contour is modified to suit, and also to bring compression ratio back to the right value. A long reach plug is used instead of the short reach of the .29.

As a result of increasing the bore diameter by .058 in., the ports are increased in effective width, although the port milling operation remains dimensionally the same.

All other parts are fundamentally unchanged and, in fact, the new conrod is now fitted to the .29, so that those desiring a little more urge can convert their new type .29 into a .35 for the price of wrist pin, piston, sleeve, head gasket and head which comes to \$5.85.

The rather brutal tests applied to the .29 may be recalled, in (Continued on page 41)

which we endeavored to prove the merits of temperature-controlled clearance. (The .29 was wrapped in asbestos, run wide open without seizing.—Editor) An advantage of the improved thermal design is that it permits the use of very fine piston clearances without increasing friction at high temperatures, and the fit between piston and cylinder on the .35 are especially noteworthy as being among the best we have seen.

On test, the .35 behaved exactly like the .29 and was delightful in every way, and despite the slightly heavier reciprocating parts, produced no more vibration. The figures obtained were so unusually consistent with the slightly larger displacement that 650 rpm added to the .29 figures on the same props up to about 13,500 tells the whole story. At 14,000 the gain drops to 350 and continues to fall, which indicates a most useful speed range of about the same as for the smaller engine, the displacement advantage being in the form of torque. END

Stumpy

(Continued from page 17)

flying. Then, when ship is in the air, you can take over, with your buddy's hand also on the handle. This system will minimize broken props, to say the least. Speaking of props, plastic 7 x 4 Kaysuns worked well with the .099 Cub and were an economy factor in rough landings. Once you have the feel of the model in level flight, you can start simple maneuvers. After that, hook up those streamers and send Stumpy off to the wars! END

Contest Calendar

NOVEMBER

14—*Bakersfield, Calif.*: Class AA Central Valley Model Airplane Championships for Free Flight Gas, Towline Glider, Outdoor Hand-Launched Glider and Outdoor Rubber. Francis Stewart, Contest Director, 900 21st St., Bakersfield, Calif.

28—*Fresno, Calif.*: Fresno Gas Model Club Record Trials for Free Flight Gas. Jim Scheidt, Contest Director, 2225 Brown, Fresno, Calif.

DECEMBER

12—*Bakersfield, Calif.*: Bakersfield Record Trials for Free Flight Gas, Towline Glider, Outdoor Rubber, and Outdoor Hand-Launched Glider. Clinton Merrill, Contest Director, 212 Washington, Oil-dale, Calif.

26—*Fresno, Calif.*: Fresno Gas Model Club Record Trials for Free Flight Gas. Jim Scheidt, Contest Director, 2225 Brown, Fresno, Calif.

29-31—*Miami, Fla.*: First King Orange Internationals for Free Flight Gas, Free Flight Flying Scale, FAI Power, Radio Control, Towline Glider, Outdoor Rubber, Outdoor Hand-Launched Glider, Controlline Flying Scale and Team Racing. Charles R. Quick, C.D., 1896 N. W. 36th St., Miami, Fla.

Contests designated "pending" mean the application is before the proper authorities as we go to press; "Record Trials" mean no prizes, but a chance at cracking the records; "Class A" is a meet with restricted entry; "Class AA" is a meet with unrestricted entry; "Class AAA" is a state-wide or regional meet; "Class AAAA" is a national or international meet.



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Lazy Bones

(Continued from page 21)

balanced with a sizable lead counterweight. There went the trim! It took four strands of 1/8 rubber to wiggle the flippers. This amount of rubber could not damage the escapement because of the slowed-up action of the heavy elevators. The Macnabb did fairly well, but for escapement operation would suggest narrow chord flippers: they'll give you vertical dives, anyway.

However, on going down from level flight, the nose would come down slightly, speed would pick up, and then the nose would come back to the horizon for a fast cruise. To be sure of a steep dive, up-elevator was required to slow up the ship, after which, down would be effective. If stalled first, the plane would enter a snap dive and afterward would hold that speed. Apparently, the problem was to get the flippers in the control position against the air load. Aerodynamic balancing would help. The natural slight left rudder in the third position of the compound sometimes would produce a turning dive that would tend to tour the perimeter of the field.

When trimmed a trifle slow, Lazy Bones will loop on the glide. It takes several turns to get up the necessary speed but the nose then goes up smoothly and steadily, the ship snapping mildly at the top to fall into the loop.

Spot landings won't be as easy as with those fast sinking, roly small jobs. Despite its large drag, the Lazy Bones will reach out on a calm day, tending to fool you every time. Turning diameter is large because the ship does not overbank and therefore the final stages of one of those wild and woolly approaches get rather cramped. You have to make real airplane approaches: the sweeping 180's from downwind into the final are lovely to behold. The ship also sails serenely in the glide high up if there is any wind to ride.

It is a simple matter to get smooth turns by extending the wingspan, using high aspect ratios. Since Lazy Bones turns well on its low aspect wing, it has the basic requirement for stunting on a .29. Aspect ratio and dihedral are both compromises aimed at giving all-around performance.

Radiowise, we used a Macnabb 465, an old Miller which local people have been giving away to each other (because it is so old!), Babcock single-channel, and an ECE. We advise against using the 465 with a .29 engine in this particular ship unless the receiver is mounted quite softly. In power spirals, the .29 will shake up the relay. The Babcock was mounted vertically on a block of foam. It seemed desirable to use the conventional horizontal mounting, although the equipment always worked well. On relays in general, don't use less than .4 operating range, especially on a Kurman, which should have the lower contact arm reinforced, when using the .29's. We used a .5 range at all times; once, with an accidental .2 spread, the ship performed every maneuver known to man without urging by the pilot, ended in a screeching wing-over into the earth. Since it broke only the prop, the structural strength can be vouched for.

Because of the large wing area, a double complement of batteries was carried for A and escapement. Why not? Four batteries last much longer than two and you can fly for weeks without making changes. The battery compartment is accessible through a cut-out in the front cabin bulkhead. Batteries are assembled in packs, taping together separately escapement batteries and filament batteries, all being packed by means of a heavy rubber band or strip-of tape. Wedge the pack snugly by means of soft balsa pieces. The receiver sliding tray covers the compartment opening so that batteries cannot fall out.

It is felt that anyone capable of making an advanced model of this type will have no difficulty enlarging plans. Nor will he require directions of the "now-glue-this" variety. Use an 11-4 prop on .19's to .23's, or 11-5 on .29's. The plane flies well, is tough. If you like them big, it's for you. Drawings are quarter-scale. **END**

The Spacer

(Continued from page 10)

contact, as this will allow the nuts to seat against the plywood instead of the balsa. Cement the 3/16 sq. at the rear of pylon and then sheet cover the top of the fuselage, and then the bottom of the fuselage. When it is dry sand off the excess balsa. Cement the rudder parts together and after sanding, trace pattern from the plans, noting that the dotted lines show the rudder coming through the fuselage up to the stabilizer position. Cement the tailskid to the rudder while it is pinned to the board so no warp will develop. Cut the slot in the bottom rear of the fuselage for the rudder, being sure slot is straight, and then cement the rudder in place. Fill in the 1/16 sheet balsa at the top of rudder, recementing all the rudder parts where they fasten to the fuselage.

Cut out enough pieces for the wing platform from 3/16 sheet, make them longer than necessary, cement together and when dry, mark the correct width and then cement the 5/32 sq. platform stiffeners to the platform. Trim and sand to the stiffeners for width, cut to proper length and then cement in place on the pylon. Recement the wing platform after it has dried, applying the cement fillet. This is all that is necessary, if it is done right. Cement the fuselage sides in place, 3/32 x 3 sheet balsa, and do not cut out the side view but merely cement the sheet to the fuselage and then trim when dry. Trace out the nose template on a piece of stiff white paper or thin balsa sheet, mark

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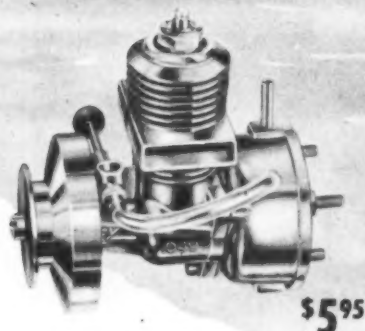
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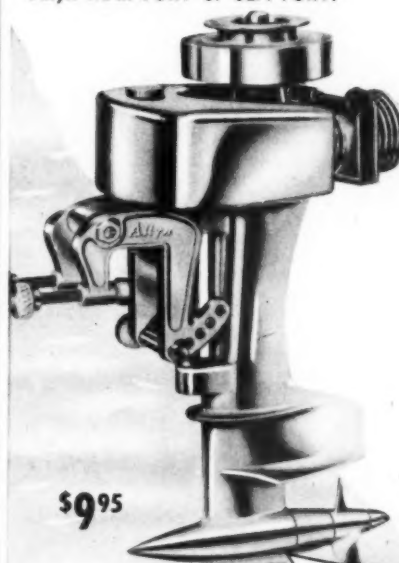
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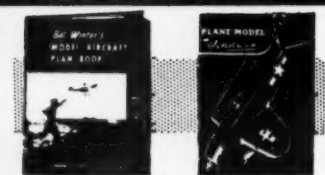
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the nose of the fuselage and trim.

Cut the hole for the timer, then lay a piece of 1/4 sheet balsa or 1/8 plywood on the inside of the fuselage and mark with pencil for the timer support. If balsa is used, the bottom of the timer support will have to be cut away where it covers the tank lugs so the tank can be removed when necessary. Drill all the tank and needle valve holes in fuselage sides. Bend the 1/16 wire hooks for the wing and tail and cement in place. Bolt the engine in place and then fill in the bottom of the cowl with 1/8 sheet balsa. Let dry, remove engine and cement again on the inside of the cowl.

Then engine may be radial mounted if preferred. The only important condition is that the distance from the propeller to the pylon be maintained so that the model will balance correctly. This view shows the engine mounted directly to the firewall; if a timer tank is used, then the firewall will have to be moved farther back. Construct the fuselage in same manner as for beam mounts, include the beam mounts in construction to aid in strengthening the firewall, and after locating the firewall, cut off the protruding beam mounts and cement another firewall in place in front. Fill in the top and bottom of fuselage with 1/8 sheet balsa. Cover the fuselage with tissue and dope.

Pin the leading and trailing edges in place, then cement the stab tips in place. Pin the lower spar and then cement all the ribs in place. The upper stab spars are notched slightly at the last rib and then bent down and cemented in place; or, if you like the tip tilted up, place a block under the stab tips so that they are level with the top of the stab airfoil. Sand the leading edge and tips, sand lightly all over and then cover. Give stab one coat of dope and then bend the stab hold-down hooks and cement in place. When all is dry, give a second coat of cement. Finish doping the stab.

Taper the leading edge as noted on the plans and then pin in place. Next, taper the tip spars and tip trailing edge as noted and pin them in place. When trimming the tip trailing edge, the excess is removed from the forward or thick part of the trailing edge. Cement the tips and tip gussets and tip ribs in place. Pin the main spars and trailing edge in place and then cement all the main ribs in place. Cut the wing trailing edge gussets from 1/8 x 1/2 balsa and cement them in place while the wing is still on the board, carefully noting the grain direction.

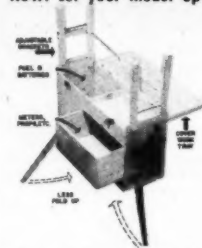
Cut the wing tip braces as noted on the plans and cement them in place. Repeat the procedure for the other half of the wing. Shape the leading edge and sand the leading edges and tips. Dihedral wing as shown, using hard 1/8 sheet balsa braces. Notch the three center ribs on the top only for the 1/8 x 1/4 rubberband braces. Sand wing lightly all over and cover. Before fuelproofing, cement half round 1/4 dowels to bottom of wing on the leading and trailing edges, as this will prevent the wing from shifting in flight.

The AB Spacer climbs to the right and glides to the left. Hand glide the model and shim under the wing until it glides smoothly. Looking at the model from the rear, set the rudder tab over to the left about 3/32 in., and tilt the stabilizer so that the right side is down. An approximate 3/32 shim will produce a nice wide turn. Run the engine slowly and fly with about a 7-10 second motor run. If the model turns too sharply to the right under power, use a little more left tab. Never move tab more than 1/64 in. at a time; go at it gradually—take short flights to check out the power pattern. If the model stalls and the circle is wide, do not take out incidence but increase the stab tilt; as the turn is tightened, the stall will diminish. If the stall will not come out by adding turn in the glide, then take out incidence. Always use a dethermalizer. Good luck! END

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Radio Control News

(Continued from page 25)

Tired of using a straight yoke on your escapement arm? Perhaps you've wanted more up-elevator and less down movement while still maintaining neutral positions. Maybe Fig. C will help you out. A configuration of the yoke on a torque rod control similar (we say similar because the measurements and bends will have to conform to your particular set-up and escapement) to Fig. C will allow the control to go more in one direction than the other and still maintain neutral positions. Point No. 1 should be close to the pin in the top neutral position and Point No. 2 should occur at the latching position of the escapement. A little time spent with a compass and straight edge in laying out what you want will pay off in better performance.

Too much left! Too much right! Oh well, pick it up and we'll try it again. Are you having trouble with take-offs and landings? Then here might be a possible solution. Hal deBolt sends in another "hot" item which he claims gives almost 100 per cent perfect results. Fig. D shows the deBolt method of a four-wheel gear as based upon Claude McCullough's gear at the Nationals. As shown, it applies to the conventional Live Wire type landing gear but it could be readily adapted to other types. The wheel bar should be spring loaded to a normal "on-the-ground" attitude. Fig. E indicates another method used by Mr. Kratzet of the Detroit area. Both methods produce excellent results. We can vouch for the four-wheel gear since we tried it about three years ago but somehow or other gave it up. Art LaGrange of Poughkeepsie, N. Y., has also used it on a small RC flying saucer and has had perfectly straight take-off runs for distances in excess of 150 ft. We should see more of this type of gear as soon as the idea is circulated.

Pete Bliss, an old time RC fan from Corn- ing, N. Y., sends in the schematic shown in Fig. F for a hand field strength meter. The novel feature of this meter is that it may be plugged into any multi-meter tester you may have. Note from the photographs that the unit is contained in a small plastic case and also the pins which are spaced for the particular multi-tester. As is typical with this type of circuit, the more sensitive the meter the greater the swing of the needle, for a given input. Pete says any meter up to a 0-5 ma one will work well, since the amount of current indicated is a function of the antenna length and distance from the transmitter. The only suggestion we'd like to make is the use of a 1N56 crystal instead of the 1N34, since the 1N56 will give a slightly higher reading under given conditions. Remember that the purpose of a field strength meter is to check the output of your transmitter. Therefore, it is important to keep the FSM at a given spot at all times during tuning of the transmitter, changing of transmitter antenna, etc. For general use, a 3 ft. antenna should work fine at a distance of about 8-9 ft. from the transmitter. A 9 ft. antenna on the FSM will give maximum pick-up at a distance of about 1/2 to 1 wavelength from the transmitter (20-35 ft.).

CLUB NEWS

Another year has come and gone, a year filled with many newcomers and new records in the RC field. From all reports, it is possible that RC flying may possibly attain the far reaching status that U-control has hit. Perhaps it will take another year, or at least until a manufacturer puts out a set within the reach of all interested fliers. Even now the flier who has been in RC for only a year is itching to try something novel. This category covers endurance and distance records, balloon bursting, altitude records, pylon races, speed events and even "blind landing" and "instrument" flying. By next Spring we

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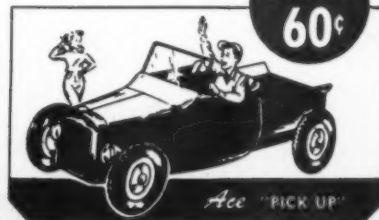
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WINNER — Junior 1/2-A ROW FF, Dave Yust, Long Beach, Cal.

WINNER — 1/2-A Helicopter event, Par Schoenky, Kirkwood, Mo.

WINNER Clipper Cargo event, Herb Koethe, Grand Prairie, Tex., setting new "Nationals" payload record.

WINNER — 1/2-A Open FF, Santa Ana Model Airplane Championships, Toshi Matsuda, Los Angeles.

WINNER — Senior ROW-A FF, Richard Epstein, setting a new record for the Vessels Ranch ROW Trials July 11th.

Note—all the above contestants used ATWOOD engines

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hope to have a few ideas for these items in print for you.

The SEV/RCG (Southeast Virginia RC Group), as reported by John Worth of Hampton, Va., is one of the up and coming radio control groups in the country, and well it might be, since practically all the members are from the NACA at Langley Field. One of their novel events is the "Tug-o-War" in which two fliers control one model alternately, each trying to fly to different points. A third flier switches control between them, and since it is usually his plane, he can take over at any time. One application of our dual control box as presented in the June '54 issue of MAN.

Fig. A shows the landing pattern as set up by the group. The use of such a pattern should do much to improve spot landing. To score, a maximum score of 10 points is given for crossing the first marker, 10 points (max.) for a straight course and crossing the second downwind marker, 10 points (max.) for crossing the inner marker and a maximum of 60 points for hitting the center of the touch-down area, with minus 10 points for each 10 ft. away from the center. A bonus is also given for a good landing, which includes no nosing over, ground looping, etc. If you like this idea, or can amplify it, write to John Worth, Box 9, Hampton, Va., and let him know. Including this in the AMA precision pattern is a possibility. Write soon to give it a chance for Spring contest work.

Arthur H. Ryan, 31770 Junction, Farmington, Mich., advises of a newly formed RC Club of Detroit, which covers the surrounding towns. They will use an 80 acre field at Seven Mile and Newburg Rds. Sounds like enough area for RC and some of the boys on Long Island are probably drooling over all that open space.

Incidentally, we saw the results of one flier's using the construction method given in last month's column. A member of the East Park Model Club, East Park, N. Y., had his Live Wire Trainer come in from about 300 ft. in a nice spiral. The wing, tail and fuselage parted company upon hitting the ground, but nylon covering and a rugged floor in the fuselage had him back in the air in 10 minutes. Dirty relay contacts were the villain in this case. Be sure to check your relay points occasionally, fellows, and use carbon-tet for cleaning them or run a clean unprinted piece of newspaper through them.

The latest official information on Canadian RC activities is that a license-free, finance-free band is being worked on. At present our northern neighbors have to pay a \$10 yearly fee. Of course they have one big advantage over us in that they can operate on the following bands: 13.56 mc, 27.12 mc and 40.60 mc, all of which have a frequency tolerance of .06 mc. Also available, but unlikely to be used to any great extent, are 915 mc, 2450 mc and 5850 mc.

Nineteen radio control artists flew in the Cloud Dusters' Radio Control event. The RC operations were directed by Gilly Bodeen and Cliff Andersen, assisted by Eddy Burdett, and Cy Bauer, Cloud Dusters' president. Forty-seven scored and nine attempted flights were made in five-and-one-half hours which averaged only six minutes per attempt. This pace was attributed to the cooperation of the contestants and the well laid plans of the RC group.

Very good flights were turned in by Joe Kuranz, Waukesha, Wis. winner of the first place trophy, flying an Electra, powered by a cub .075 Deisel on 54 mc. Tom Schraeder, Chicago, flew his original powered by an 11-lb. Forster .99 on 52 mc, and also an original to second place, just below Joe in points. John DeCaine, Milwaukee, flew his Trixter Beam powered by a Cub .149 using a Macnabb 27 radio to third place. John was tied by Delmar Johnson of Chicago, but lost the

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toss. Del flew a Rudderbug powered by a Forster .29 and controlled by a Miller receiver.

Other good flights were turned in by Grove Kremer, Waukesha, Robert Nelson, Freeport, Ill., and Tony Grish of St. John, Ind.

All fliers had equal chances, each taking his turn in order. Whenever possible, two frequencies were used, thereby squeezing in a few extra flights.

Dual flying makes more flying and creates greater interest without lag. The club plans to hold an invitational some time in October using, if possible, an equal number of 27 and other HF fliers to see just how many flights can be made in a limited period of time.

The DeKalb Cloud Dusters' Model Airplane Club, DeKalb, Ill., held its Ninth Annual Flying Circus on a soaked field during a drizzling rain which lasted until early afternoon.

In spite of the rain Contest Directors Dutch Hess and Dale Hindenburg had the members set up operations to handle the few expected contestants. To the club's surprise, 85 contestants poured in with the rain and waited for their turn to take a crack at the 27 club trophies. Joe Stanton won the Open championship trophy and Don Bates won the Junior-Senior.

The rain cut the expected attendance of 200 to 66 free flight and 19 radio contestants.

NEW ITEMS

Electronic Specialties of 58 Walker St., New York City, is offering a Modulator Parts Kit for use with transmitters using 3D6 output tubes. Selling for \$5.95, this kit contains one of the best modulation transformers we've seen in this class. A complete schematic comes with the kit and the advanced builder can readily change a few component values to modulate tubes other than the 3D6.

The deBolt Model Engineering Co. has 3PN servos ready for distribution as this goes to press. One thing we cannot over emphasize when using these servos is the fact that 1-1/2 volts is all that is needed. Applying 3 volts to the unit will result in improper operation and a waste of batteries. Remember that two pen cells will provide power for 5,000 operations. **END**

Foreign Notes

(Continued from page 37)

Firstly, the very high compression of the Diesel makes it very much less suitable for cord starting than a glow unit and the extra tug necessary would have to be offset by more rigid mounting. Secondly, since smooth, miss-free running is so closely related to correct compression adjustment according to load, the Diesel is bound to be a good deal more critical to operate for, whereas the glow plug outboard will start off from rest, pick up speed and reach its maximum as prop load is reduced, the Diesel, unless very accurately adjusted, has a tendency to misfire when prop load is reduced (because the ignition timing is too far retarded for the increased rpm) or, alternatively, to stall if over-compressed.

We do not infer that the Diesel is unsuitable for outboard adaptation. We merely suggest that, for a beginning and to gain popularity, a continuation of the glow plug power-head would be preferable.

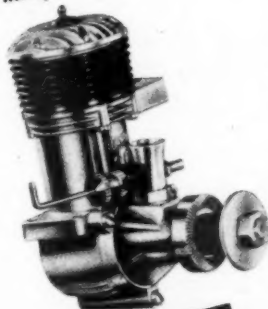
Separate Classes for RC?

The many successes of multiple control models in recent European RC contests has given rise to the question of separate classes for multi-control and rudder-only competition. George Honnest-Redlich, ED equipment designer and winner of many important RC events this year, has this to say: "... Our flights have now proved that rudder-only jobs cannot compete; future competitions will

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have to be split up into rudder-only and
multiple jobs. This is a good thing: it will
give the beginner, or the less financially for-
tunate, a chance to compete in their class.
After all, no one would expect a dinghy to
compete with a 100-ton yacht. But at the
same time, we should not hold back any
advance by competitive rules which seriously
handicap, or make unnecessary, the multiple-
control jobs.

Jap High-Performance .19

One of the most promising Japanese en-
gines so far to come into our hands is the
Enya .19, made by Enya Metal Products Co.
of Tokyo. Matt finished diecast crankcase is
en bloc with cylinder and has a shrunk-in
liner. Short crankshaft runs in a bronze bear-
ing and has rectangular rotary-valve port. A
novel feature of this beam mount engine is
the four tapped lugs in the back of the crank-
case, to which a near circular radial-mount-
ing flange, supplied with the motor, can be
fitted.

German Four-Speed Diesel

Not so long ago, Herr Walter Fritsch of
West Berlin unobtrusively entered the market
with a very good small Diesel of .06 cu. in.
displacement. Now he is also turning out a .30
cu. in. shaft-valve Diesel aimed at the radio
control man. An unusual feature of this
motor is that it is to be made available with
a four-speed carburetor. The motor has a bore
of .716 in., the stroke being .748 in., while
weight is 7.8 oz. Developed power output is
claimed to be .55 hp.

END

One Line

(Continued from page 15)

experiments, utilizing the old wire type cam,
it was found that the extra pull caused ex-
cessive friction to the working parts. With
the aid of Sam Beasley, Vic and Joe Stanzel
have perfected the new worm type cam,
which is truly a vast improvement. The first
model that was built using this type of cam
flew very nicely, showing no bad tendencies,
except that it pulled too hard. To counteract
this, Vic and Joe turned the unit at an angle
so that the lead-out comes out in front of the
wing L.E., well ahead of the balance point.
In addition to this, the original whippy wire
actuator on the control handle has been made
of heavier stock and mounted on a ball bear-
ing, so that it is now quite sturdy and virtu-
ally frictionless.

At this point you should be cautioned
about an excessively tail heavy model. This
will reduce the pull on the line, but will
make the model unstable. However, it is
desirable to have the model just the slightest
bit tail heavy.

In a "Poop" sheet recently published by
Stanzel, he shows two different types of wing
platform, one being the high aspect ratio
(10-1), the other low (6-1). From an aero-
dynamic standpoint, the high aspect ratio is
more efficient. However, when using such a
platform, it is quite possible to get induced
drag at the tip. To counteract this, one should
build in about 1 or 2° of washout. It was
first believed that a high wing model would
be more stable than any other type. Recently,
a class C speed job built by Leo Holliday
disproved this theory. Leo's model has a
metal wing mounted mid-wing fashion on
the pan. The mono-line unit is mounted on
the inside. The best time to date is 155-plus
mph with the model behaving very nicely.

This writer feels that it is desirable to use
the solid type construction for the high wing
design, and the metal constructed wing for
the mid-wing design. When using the slanted
forward type mounting for the unit, it will
be necessary to install a wing tip controlline
bearing. This is simply a piece of .045 diam-
eter music wire of suitable length with a
1/8 in. I.D. eye at one end. Drill a hole .042
in diameter into the L.E. of the wing at the
tip and drive the straight end of the wire

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into it with a coating of cement applied. Make sure that the eye is perfectly aligned with the axis of the control unit.

"How do I learn to fly with this stuff?" you're probably asking. All I'll say is, it isn't any harder to fly with mono-line than with any other type of control. One should build some type of trainer, however, to familiarize himself with the type of flying mono-line gives you. The outstanding advantage, other than reducing drag, is that you never lose control if the line should slack, and the elevator always returns to neutral.

One thing that might amaze you is that, after the model is airborne and has assumed level flight, you can release the control knob and hang onto the handle and pylon with both hands. The model will continue in a "grooved" flight pattern, not varying its altitude 3 ft. around the circle. Near the end of the run you come out of the pylon and resume control of the model for landing. Caution: do this only in calm weather and with a well tested model.

Late in 1951 I started a little experimentation with stunt and combat models. One was a 780 sq. in., 4-lb. stunt model powered by an Orwick .29. With a 70 ft., .028 line this ship would average about 75 mph. Flying stunt with mono-line is different in that you must become accustomed to pulling and pushing for the extreme control required for stunt models. Once you get used to this, you can begin to enjoy using the longer line (70 ft. with a 700 sq. in. .19 ship is quite possible) and smaller engines which require less fuel.

For the sport flier much enjoyment can be had flying Half-A's on a 70 ft., .020 line, or .29's on, say, a 200 ft., .030 wire. It's fantastic to watch a 500 sq. in. model flying on such long lines. You'd swear it was free flight or radio controlled.

For the combat fan the added speed gained should be greatly appreciated. An experimental combat model that I built in 1952 would hit close to 90 mph and turn very sharply. Here again you find that the feature of not losing control with the lines slack is very handy.

Here are a few points to watch:

1. Make sure the controls work freely. The elevator should return to neutral the instant you release the control;
2. Have the push rod moving freely, but properly braced;
3. Avoid snags when flying off grass. Extra attention should be paid this point, as you use a heavier wire and have more slack;
4. Do not let your flying wire become kinked. To achieve perfect control, your line should always be perfectly straight;
5. A small amount of weight added to the outside wing tip will make the model behave much better at low speed;
6. When flying from a hand launch, give a small amount of down control on take-off. Unless this is done, the model will have a tendency to climb too rapidly.

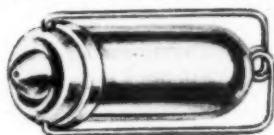
Attention all contest directors and timers: It is impossible to whip a mono-line model. You can't whip it out of the pylon, much less in it. At the 1953 Nationals, Leo Holliday was unofficially clocked at 137.5 mph in A, but the timers would not credit him because one of his hands was on the control knob out in front of the pylon. If one were to try to whip a model using mono-line, he would kink the wire actuator. This would be disastrous, as you could not get control. The same thing happened to Sonny Mozell when he turned 149-plus. However, he later turned 144.5 mph for the fastest jet speed flight at the Nationals.

It is readily admitted that the first mono-line units utilizing the wire cam were impractical for flying like this, but the new worm cam design is functional and offers possibilities to the contest modeler. Stanzel now has custom made units for such use.

END

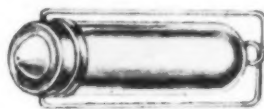
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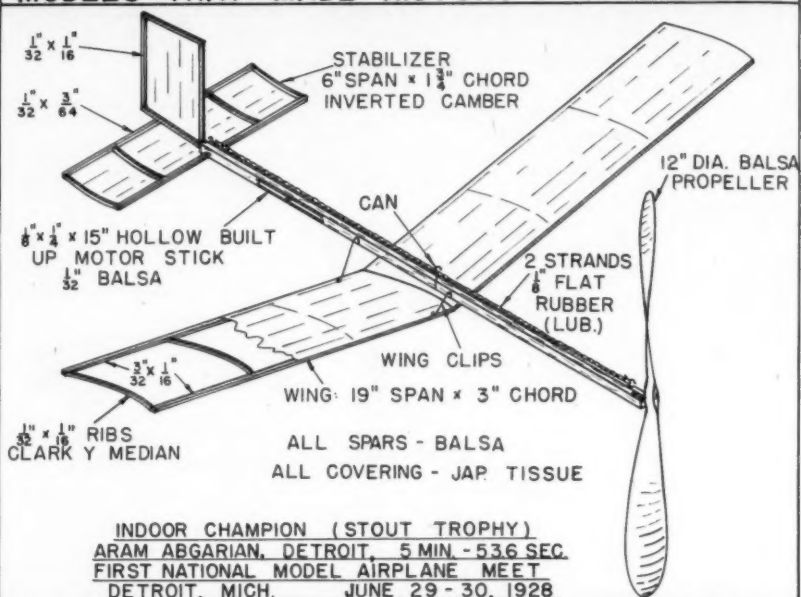
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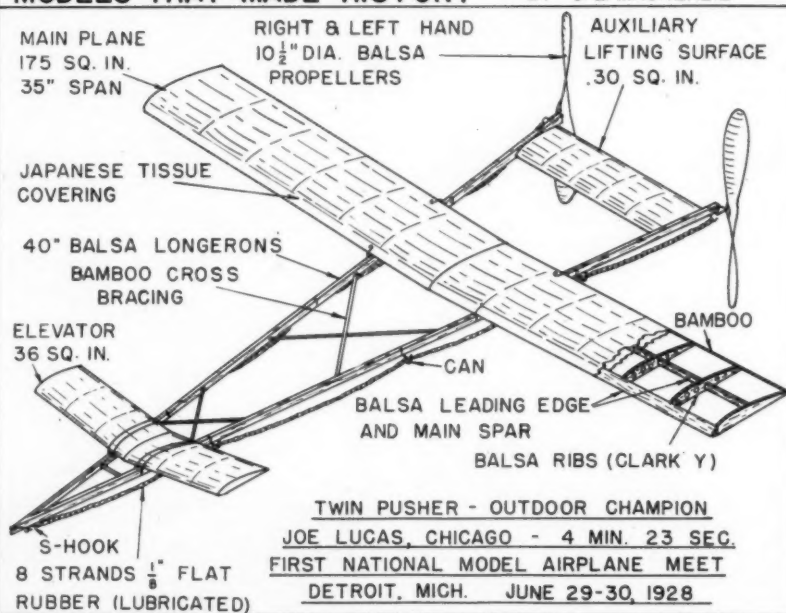
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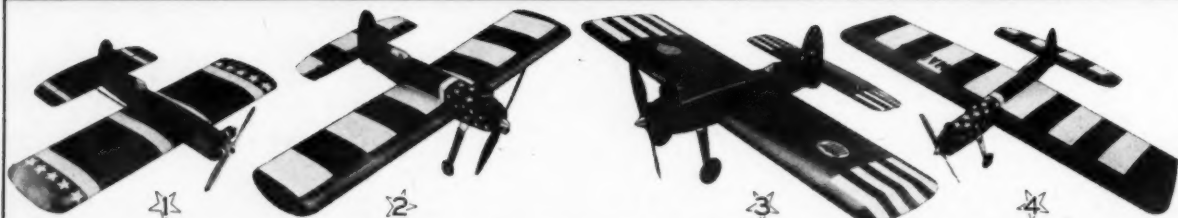
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Atwood Outboard

(Continued from page 38)

die castings tumbled to a good finish and involving some pretty intricate die work. The fuel tank casting incorporates a shelf with a projecting boss upon which the engine crankcase sits, and is reamed to provide the disc valve type power take-off bearing. Screws pass through the two radial crankcase lugs and holes in the tank shelf into matching tapped holes in the lower end unit, a paper gasket being fitted in the usual place. The driven disc is notched to engage with the crankpin and has an integral shaft of 5/32 in. diameter and 9/16 in. length which is ground to an outstanding finish. A press-fitted brass adaptor connects the shaft to a long thin coil spring which terminates in another small shaft threaded for prop and spinner nut. The spring type flexible shafting, owing to its helical nature, is like a female thread, and does, in fact, screw onto small projections on the brass adaptor and prop shaft. Replacement is therefore easy and, at 75¢, inexpensive. The steel prop shaft is supported in, and butts up against, via a small flange, a bronze bushing. The slight end thrust exerted by the spring drive exceeds the propulsive thrust so that a water-tight bearing results.

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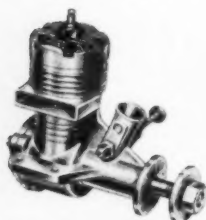
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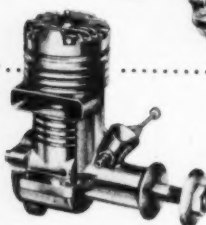
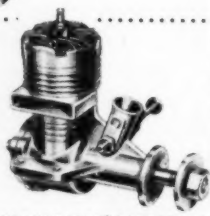


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nut.

The method of clamping the motor to the transom offers several advantages, the most important being that since a two-piece clamp encircles the lower end casing, the whole unit may be raised or lowered 5/16 in. to give the most desirable underwater position for the prop. The unit may also be rotated full circle and the boat driven in reverse, if the whim takes you. Planing trim is adjustable by a screw and locknut threaded into the casting, the hole communicating with the spring drive groove to serve as a convenient means of lubrication. The head of the screw butts up against a sturdy transom clamp which is retained in position by a further single screw. All adjustments are provided with nuts and bolts which may be regulated to the desired degree of tension.

Unlike the Allyn engine, which has three backplate screws, the Atwood may be mounted with the tank either in front or in back of the engine, though with the water cooled model it is neatest to employ the forward tank set-up and, anyway, it keeps the oil out of the boat.

The fuel tank is of smaller capacity than the Allyn and has a fuel tube connecting nipple at the bottom of one side to allow the tube to pass to the spraybar without sharp bends. Although less tidy than the Allyn arrangement, it is also less troublesome. A screw-filler cap is employed with no safety retainer.

Finally, to the heart of the matter, the engine. This has been considerably modified from the airplane motor, except in the matter of rotation, which remains counter-clockwise. A short taper drive crankshaft with a tapped end for the flywheel retaining screw replaces the usual long threaded shaft. A rigid extended needle replaces the aircraft type, and the water cooled version has a special cylinder head. A very large flywheel, blue anodized, provides momentum for the large prop, and has a knurled pulley groove which will be appreciated when the starting cord gets a bit oily. The water cooling system is simple and trouble-free, circulation being impelled by wash from the prop through an angular-ended tube located in the most advantageous position in relation to the prop. The water enters the cylinder jacket on the lower side and is expelled from the upper.

The engine tested was the air-cooled type, and its behavior and performance gave no indication that improved cooling was required, and while we would be the first to go for the fascinating idea of making it even more like the real thing, and using water cooling, it is not a necessity on this type of motor. This does not mean that if you have the water cooled version that you should disconnect the tube; it simply means that the air cooling with fins is perfectly satisfactory. If miniature outboard racing eventually becomes a competitive sport, it is possible that water cooling may offer certain advantages for tuning for ultimate performance by reason of constant temperature, but that is another story.

Having no yardstick other than personal opinion for measuring the power of outboards, it is not possible to say which is the better engine, though if other manufacturers develop the type, we shall undoubtedly devise something. At this stage, however, we can say that the Atwood is powerful and reliable, and more suited to large boats and lower speeds than the Allyn. Conversely, the Allyn would be more suitable to smaller and faster boats. Having wet our feet and enthusiasm with both these engines, we believe that many people will warmly welcome more push at less miles per hour. (Knots to the nautical types.) In small hulls the Atwood is, nevertheless, still very fast and the above should not be construed as meaning that it is a dignified old clunker. Far from it.

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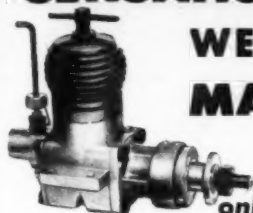
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Meanwhile, the spring drive seems to be efficient and trouble-free, and of less delicate nature in this application than small gears. However, it does seem to consume some power, though not as much as badly meshing gears, so that the final analysis really rests with the manufacturer.

(In other words, it's a toss-up between these two fine engines.—Editor) END

Mold Your Own

(Continued from page 31)

thickness, temperature and drawing ease best suited to the purpose for which the material was intended.

Then, I chased the wife out of the kitchen and set about like a scheming alchemist to discover great things. Setting the temperature gauge at 300°, I hung the first sections of celluloid from spring clamps attached to the upper grid in the oven. Timing the experiment as accurately as possible, I left the material inside, first, for three minutes before opening the door to see what had happened.

The very thin sheets had curled a bit, but nothing more, and the thicker sheets looked no different from when they had first been put in. Hm-m-m. Nothing else to do but give 'em the works, so setting the temperature gauge at 400° and allowing five minutes to cook, I settled back to await the outcome.

Right on the dot, I pulled down the oven door and glanced inside. "Holy smoke!" The thin sections had disappeared and beneath their clamps smoked drops of brown goo. The thick sections had literally wilted to long streamers of blistered stalactites looking for all the world like colorless pieces of some kid's bubblegum. Well, I was on the right track, but it was plenty apparent that exactly the right temperature was going to have to be found and the right timing also, if my sections were ever to become perfectly "cured" for canopy material.

Another fact soon became apparent, too, and that was that the thinner sections were useless for this operation because they tended to curl beyond redemption during heating, and cooled too fast during transfer out of the oven to the mold. This narrowed the field to what is known as "40" gauge, locally around here, and happens to cost just 40¢ per square foot. Actually, it is clear celluloid, 1/32 in. thick.

Two hours later I had brought my experiment to a successful conclusion, having messed up the kitchen, dirtied the oven, given myself a steam bath in all the heat, and run up the gas bill—at the loss of a cherry pie (my favorite) which the little Frau said she could have baked along with all my stuff if I had let her. However, these gems of truth stood out on my well pencilled page: temperature, exactly 325°; time, exactly three minutes in a hot oven.

First, the balsa forms were mounted on the tip of a knife blade clamped securely in the jaws of a small bench vise. This vise I mounted on a small table alongside the oven itself. Then, a thin film of white vaseline was rubbed over the form in readiness for the actual operation. Two pair of leather gloves came next—one pair for me and one pair for the little woman who was recruited as my helper. These are for one reason only and that is so you'll have fingers left when the canopies are made, because the stuff gets awfully hot.

Lay the full celluloid sheet alongside your form and cut off a section 1-1/2 to 2 in. larger all around. Then fasten a spring clamp to one end and insert it into the oven, which has been brought up to heat at exactly 325°. Shut the door and time it for exactly three minutes. Have everything ready because now you are going to have to work fast—but really fast. Open the oven, remove the material, holding one corner between each of your thumbs and forefingers, and lay it down

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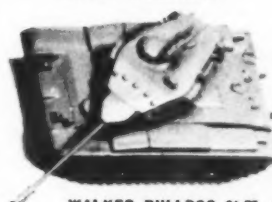
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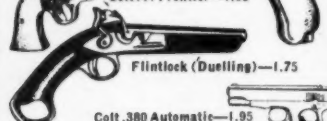


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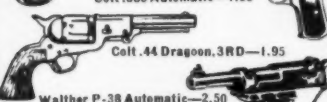
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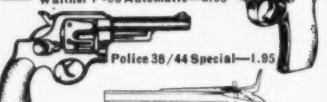
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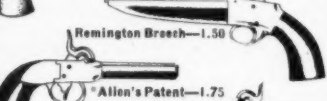
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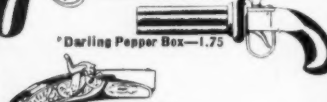
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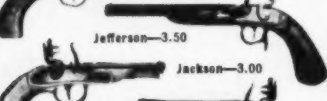
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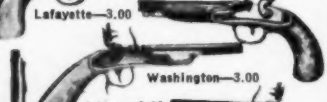
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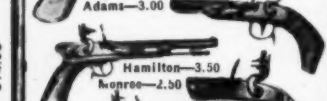
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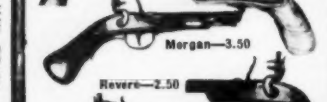
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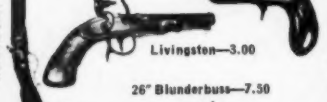
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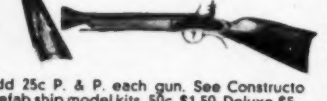
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quickly over the form. Your assistant grabs the opposite two corners the same way and both of you pull the material down over the form, working it down beyond the edges, all the way around. If the material is "cured" exactly right, and you work fast, it will settle over the form perfectly and draw without any bubbles or distortions. If it doesn't work the first time, or even the second, put it back in the oven for a reheat and give it the works again.

When you have made just the right canopy let it cool, and then polish it with a soft, clean cloth. Wipe the form clean and replace it under the shaped celluloid enclosure. Mark the boundary of the form on the celluloid with a fountain pen and then trim carefully with a sharp pair of scissors. Clean and round the edges with fine sandpaper and mount the canopy on your model. You'll be mighty pleased with the result. Yes, you'll start building all those streamlined super ships that you've considered impossible in the past.

END

Flash News

(Continued from page 7)

assistance with small rocket motors mounted at the tips of a helicopter. The Reaction Motors liquid-propellant rocket motors mounted on the tips of a Sikorsky HRS-2 assault transport provide up to 20 per cent more lifting power for take-off or hovering. Each of the tiny motors weighs only about 1 lb. and the entire system, including hydrogen peroxide fuel, weighs only 67 lb.

Air Force has tested a group of 25 Oerlikon anti-aircraft missiles at Holloman Air Force Base, Alamogordo, N. M. The Swiss-built missiles are rocket-powered and have a length of 16 ft., a diameter of 3 ft. 5 in. and a fin-span of 4 ft. 3 in. The fully loaded missile weighs 545 lb. and is capable of supersonic speed. The missiles cost about \$20,000 each. The Swiss firm has an American subsidiary, Oerlikon Tool and Arms Corp. of America, and a new factory near Asheville, N. C.

Royal Aircraft Corp. has been established in Milwaukee, Wis. to manufacture and distribute the Italian Piaggio P-136L twin-engine, five-place amphibian. The gull-wing monoplane is powered by two Lycoming 260 hp engines and has a top speed of 180 mph. The new company has purchased 50 of the machines from the Italian company, which will ship them in packaged assemblies for completion in Milwaukee.

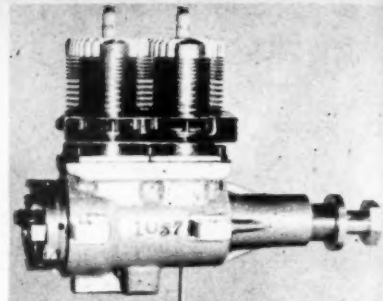
Air Force Secretary Harold E. Talbott reveals that every Air Force fighter is now a jet. The USAF is believed the first Air Force in the world to become exclusively jet-equipped in its fighter forces. Talbott also reveals that a Boeing B-47 Stratojet six-jet medium bomber has remained aloft for 35 hours using air-to-air refueling.

The U. S. Army is working on a plan to place Army transport helicopters in service with U. S. helicopter airlines to provide service testing as an aid in acceleration of maintenance, overhaul and spare part requirements data. The plan requires coordination with a number of government agencies, however, particularly the Civil Aeronautics Board, which requires all civil helicopters to have airworthiness certificates.

United Airlines will equip all of its four-engine transports with airborne radar equipment in a new \$4-million installation program. The new "C-Band" radar units, mounted in the nose, will provide storm detection over distances up to 500 miles and improve the safety and comfort of passenger service. The new radar units will be installed on United's present fleet as well as 10 new Douglas DC-6B, two new Douglas DC-7 and five new Douglas DC-6A cargo planes ordered in a recently approved \$21-million equipment program.

The Custer Channel Wing-5, which uses

(Continued on page 58)



Displacement .55 cu. in.

2 Cylinder .55 Cubic Inch-Alternate Firing Twin. Carburetor Controlled Price \$64.50
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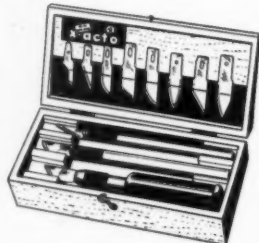


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two large channels around each of its two pusher propellers, has sustained flight at only 11 mph, according to the company. Officials say the odd machine takes off in less than 200 ft. and climbs at a 3,000 ft./min. rate.

Bell Aircraft Corp. is planning a commercial convertiplane to be ready in 1958. The five place machine will sell for about \$75,000 but be able to take off and land vertically while flying at a cruising speed of 220 mph in level flight. The machine will use Bell's tilting rotor principle in which two wing-tip rotors are in the horizontal plane for take-off but rotate through 90° to become propellers for forward flight; the fuselage remains level at all times. Bell also hopes to offer a 40-passenger transport convertiplane by 1962.

The swept-wing Douglas A3D Sky Warrior Navy carrier jet attack plane has made its first cross-country trip. It flew from Edwards Air Force Base, Calif., non-stop to Norfolk Naval Air Station, Va., in 4 hr. 40 min., an average cruising speed of 510 mph.

The Bell B-62 Rascal air-to-ground missile is slated for installation in the Boeing B-47, Convair B-36 and Convair B-58 bombers.

The Air Force has assigned the first North American F-100 Super Sabre fighters to squadron service with the 479th Day Fighter Wing stationed at George Air Force Base, Calif.

The Civil Aeronautics Board may reverse its traditional ruling and permit single-engine aircraft to operate on scheduled airline service. CAB Chairman Chan Gurney says that the Board no longer considers single-engine aircraft unsafe for airline service "so long as the necessary operational safeguards are taken." The new policy follows Board acceptance of single-engine helicopters for scheduled service and fixed-wing, single-engine manufacturers are pressing for acceptance of their types for airline service.

New British Vertical Take-Off machine consists of two Rolls-Royce Nene turbojet engines mounted in a simple framework mounted on castoring wheels. The engine tailpipes contain vanes which are controllable by the pilot to permit steering in flight. The VTO operates from a concrete slab only 15-ft. square and has remained aloft in flight up to 10 minutes to date.

North American has received an order from the Air Force for the F-86K, the model being built by Fiat in Italy under the MDAP arrangement. The U.S. versions are to be armed with four 20 mm cannon and will use North American's own fire control system, replacing the Hughes E-4 system. The new model is 8 in. longer than the standard Sabre and will be powered by a General Electric J47-GE-33 turbojet engine of 5,600 lb. thrust plus an afterburner. It is similar in appearance to the F-86D all-weather fighter currently in production. **END**

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model of the F-86D is good flier. Sept. '53.

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U-control job that really does a job. Sept. '53.

JENNY: Half-A flying scale model of a grand old
biplane dear to World War I fans. Aug. '52.

MARS: Top notch stunter by famous designer Bob
Palmer aims at beauty and performance. Aug. '52.

MAN at Work

(Continued from page 6)

left out will be lost; also any maneuver done
out of sequence; 3 Total time in circle changed
to eight minutes, three to start engine. If en-
gine starts in one minute, you'd have seven
left to fly; 4. Triangular loop mean 35° turns
with a 5 ft. radius, 45° angle maximum; 5.
Possible change in entrance of figure eights.

Idea is to induce newcomers to fly stunt.
Stunt will be easier but for inexperienced
pilots to complete pattern, practice is needed.
Although easy to finish the pattern, the rules
will advance design and develop consistency.

On combat, the famed stunt trio see it this
way: 1. No disqualification before a "kill."
If a crash occurs after a kill, disqualification is
up to the judges; 2. Extension of starting time
from two to three minutes; 3. Encourage those
who want to have an elimination process.

Outside of America's fabulous coca cola
machines, the thing about the Nationals that
most impressed Bill Dean, visiting from Eng-
land, was a free flight job that stuck into the
ground like a spear. Painted on this ship was
the name "My Sin."

Speaking of contests, the pictures (pages
18-19) of the Fifth Annual Flightmasters'
Half-A Free Flight Scale contest were taken
especially for MAN. To our way of thinking,
this is one of the most important and interest-
ing meets in the country and the Flight-
masters are to be congratulated for their
imagination. The first contest in 1950 attracted
11 entries; this year's, 44. Judging is done by
members of the Historical Society of the Insti-
tute of Aeronautical Sciences, who also sponsor
the Fidelity to Scale Trophy. There are two
age groups: Junior and Senior combined, and
Open. While judging took place in the Ingle-
wood Recreation Center on a Saturday evening,
the contestants were served punch and cookies
and shown movies of contests and previous
club activities. Flying took place the next day
at the Sepulveda Dam Flying Site. So drool
over those pictures, men, and you'll agree that
scale free flight is on the way.

This is as good a time as any to explain why
MAN does not publish contest reports. Time
was when a contest was a novelty, but contests
today are a dime a gross. It has been estimated
that MAN would have to be three times as far
during the contest season just to include all the
reports received. Every word that comes in is
read, every picture inspected, but it became
impossible years ago to publish more than a
fractional part of these reports. MAN believes
that its readers prefer model airplanes to con-
test reports, pictures of models to pictures of
guys. Club members who put the pressure on
their secretaries to get their contest results into
print should keep this in mind.

Here, on top of the 2 ft. high heap is, let's
see, a 600 word report, 11 nice pictures, and a
letter from our old friend June Dyer, covering
the Northern California Free Flight Council
Contest. This would take two pages alone.

"Could you give us a little notice out here
in Northern California or have you forgotten
all about us?" asks June. "... Appreciate a
picture or two in the magazine for the fellows;
also, they will know I am on the job."

June, you've always been on the job, so
stop your worrying! So are the hundreds of
other leaders everywhere.

Come to think of it, a large proportion of
MAN's model designs and articles come out
of California, which is as it should be, for the
fly-all-year boys do a great deal of the pioneer-
ing. MAN has no local favorites, publishes
good material from wherever it is found. And
needs no sectional columns to make up for
things. MAN belongs to the modelers. Brook-
lyn or L. A., it's all the same.

► Free plans of Navy planes now include a well detailed drawing of the North American T-28B. For copies of this and other Navy types, write Lieut. Cmdr. Richard D. Lazenby, Department of the Navy, Office of Information, Washington 25, D. C. ... Cleveland's Luscombe Sedans prominently displayed in a Life Magazine feature. Some kids may hate school, but teachers often become students during the summer. In aviation particularly they have to scramble to keep ahead of modeling students who bone up out of MAN. So these Cleveland kits were being used to teach them the principles of flight. Cleveland's Ed Pachasa says you'd be surprised at what can be learned from building and flying a rubber model. Shucks, some kids have sanded down these Sedans and done two minutes. How about that, teacher?

► That Texas had a big year in speed we've told you, but now this has been pointed up for all the world to see by Bob Lutker's winning of the Speed event at the World Championship Controlline meet, held in Holland on August 20-21. In 5 cc speed (.29's), Lutker racked up a 138 and 135.6 mph flight, coincidentally breaking George Mueller's International record, it is believed, to lead O. Ericsson, Sweden, and Labarde, France, in that order. In 2.5 cc, the "15" class, Wright, Great Britain, was first; E. Fresl, Yugoslavia, second; Desloges, France, third. Sponsored by the Royal Netherlands Aero Club, the team and speed events were held in a large exhibition hall and aerobatics on an adjacent field. Indoors, the echoes bounced around for 11 seconds after the engines stopped so only one event could be flown at a time. Aerobatics were won by Stouffs, Belgium, with Lutker a close second. Smith, Great Britain, proxy-flown by Wright, did best in team. He averaged 67 mph with pit stops incredibly short: one took three seconds. Thanks, J. van Hattum, for the info.

► Tangerine Internationals replaced by the First King Orange Internationals, sponsored by Exchange Clubs Model Aviation Corp., Miami, Fla., December 29-31. Write W. Buchholz, 55 S. W. Eighth St., Miami ... According to eye witness accounts the Southwest Model Airplane Championships, Dallas, Tex., over Labor Day week-end, were out of this world. Item that caught our eye was in Hawksquawk, publication of "Y" Model Airplane Club, Wichita, Kan. Horses for chasing models rented at a buck an hour. Ah, these westerners. On Long Island, they'd break their necks.

► This breaks a long standing policy of not publishing poetry; on the other hand, the rule may not have been broken after all. It's from the Northeastern Ohio Model Engineers. Here goes:

We was stung!
We was robbed!
To break the bad news
Is our job ...
We planned a contest
For a lovely day,
But some bad man's
Stole the field away.

► This poem was supposed to close out the month. But consider the case of Brown's Hobby Center, opposite Van Cortlandt Park in New York City. For years guys have screamed about not being able to fly their ukies. Brown convinces the Park Department to put in circles. When the Department wants a picture of modelers at work, no dice. They can't get enough modelers together. Unless someone wakes up in a week or two from the time you read this, the city will take back the flying site. Incidentally, so many free fliers showed up, they had mid-air collisions. In New York, they do everything backward. For gosh sakes, fellows, let's look alive!

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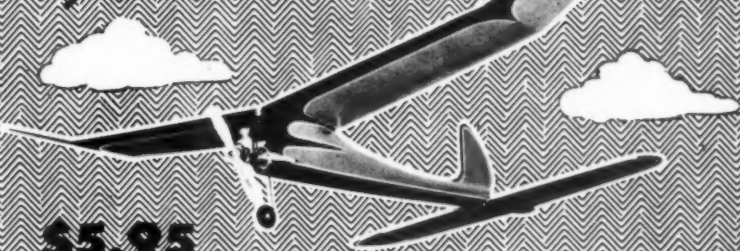
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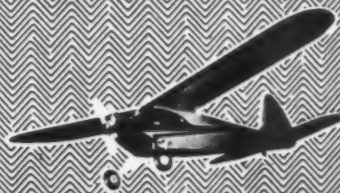
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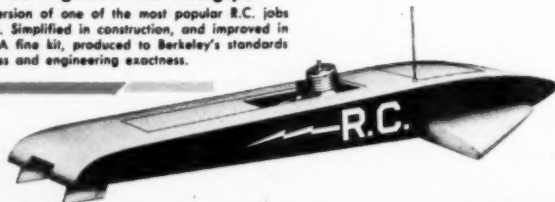


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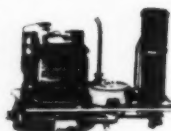
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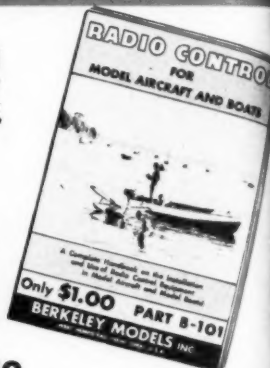


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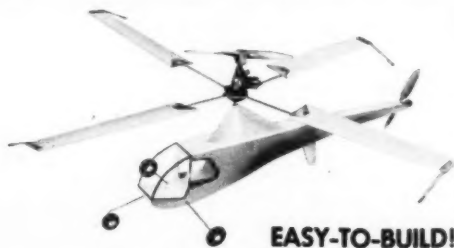


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.035 to .049 Engines for Free-Flight
.049 to .099 Engines for Control line

In active duty in Korea, this new liaison plane is perfect in proportions for model work. Plans show it as a free-flight "1/2 A" gas, with details for rubber and control line conversion. Fuelproof decals, die-cut balsa, plywood and celluloid; shaped and notched wing edges; formed gear, etc.



\$2.95



\$1.95

STINSON SENTINEL "L-5"

33 1/2" Wingspan

This model is a constant winner at National Meets. It is a commercial version of the Army's "Flying Jeep."



\$1.95

STINSON VOYAGER "T-50"

34" Wingspan

Equipped with wing slots, this authentically detailed model flies with the best. Designs in this series have been chosen for performance.



\$1.95

FAIRCHILD 24 "RANCHER"

36 1/2" Wingspan

Largest in the series is the never to be forgotten Fairchild. Stable, strong, detailed, it is ideal for contest experimentation.



\$1.95

AERONCA SEDAN

34" Wingspan

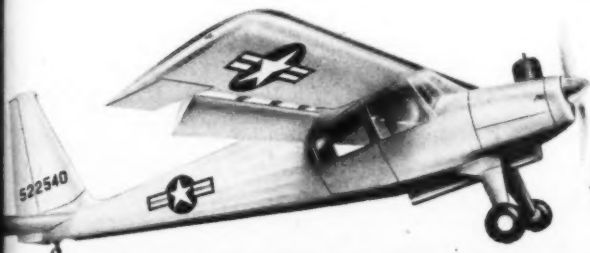
Featured as a landplane, plans show pontoon details for those desiring the added thrill of water take-offs. Finished model is really spectacular.



\$1.95

CULVER "V"

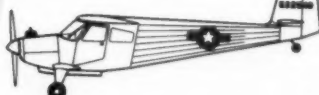
29" Wingspan
This low-wing sport plane turns in long stable flights. The tricycle landing gear adds realism to landings.



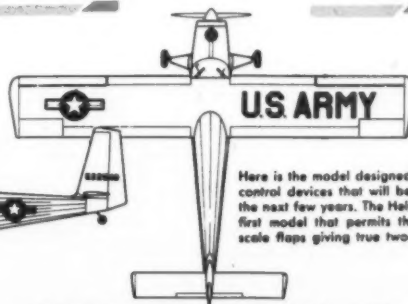
Army Liaison YL-24 "HELIOPLANE"

Variable Camber Wing for Two-Speed Radio Control Flying!

Kit \$3.95



38 1/2" Wingspan—1" Scale
For .049 to .14 Engines



Here is the model designed to use radio control devices that will be available in the next few years. The Helioplane is the first model that permits the use of the scale flaps giving true two-speed flight.

Slotted flaps may be depressed 10 degrees for Free-Flight, depressed 25 degrees for slow speed radio control flying; or raised 5 degrees for high speed flight.

buy **BERKELEY** at your local dealer!

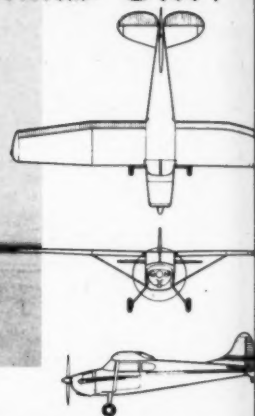
If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA, West Mountford, N. Y. Please include 25¢ packing & postage.

R.C. FLYING SCALE

PRE-FABRICATED KIT INCLUDES:

- Full Size Plans with R.C. and PAA-Load Installation Details
- Sharply Die-Cut Balsa
- Formed Metal Landing Gear
- Hardware
- Covering Material
- Die-Cut Celluloid
- Mahogany Motor Mounts
- Authentic Full Color Decals
- Die-Cut Mahogany Plywood
- Pre-Fabricated Black Balsa
- Selected Strip Balsa
- Pre-Fabricated Wing Edges

Ideal as a Christmas Gift!



Berkeley's

Designed by: Henry Struck

\$9.95

CESSNA "170"

For Radio Control — Free-Flight — PAA-Load
For .25 to .35 Engines — 72" Span — 2" Scale

Controlling your "170" by Radio is a thrill you will never forget! Perfect scale, rugged, stable in all attitudes, yet responsive in control with good wind penetration qualities. Gear location is ideal for extended take-off runs, while its larger size makes it less sensitive to turbulent air. A large cabin makes extra radio installations easy.

The plans include a wealth of scale details which will appeal to the master craftsman. Inexperienced builders will find construction simplified by the full size plans, sketches and assembly technique.

Inspect the "170" and its many features at your dealer. Study its design, examine the material, and visualize its performance on the contest field.

R.C. AMPHIBIAN...

Fly it on Ponds—Rivers—Bays—Lakes or Flying Fields!

- Detailed Full Size Plans
- Shaped Leading, Trailing Edges
- Die-Cut Balsa and Plywood
- Celluloid Bubble Canopy
- Metal Ring Cowl
- Hardware, Covering Material
- Selected Strip Balsa

\$7.95



Henry Struck's **"SEA-CAT"**

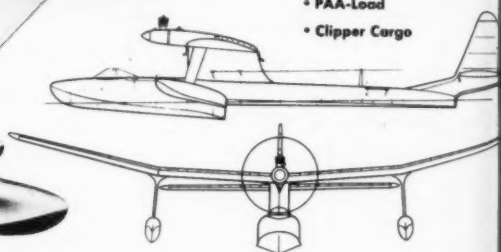
N.A.C.A. Type Planing Hull Amphibian

For .15 to .25 Engines — 68" Wingspan

Proven performance on the original test models include: First International Radio Control Flight; Fourth place in a field of seventy in the Mirror Flying Fair (The first R.C. contest for both Struck and the "Sea-Cat"); First in Radio Control at Screamin' Demons Long Island Sound Hydro Championship; Second in PAA-Load at the same contest; and Precision flights carrying over a pint of fuel at the First "World Model Air Olympics."

Fly it Five Ways:

- Seaplane (R.O.W.)
- Landplane (R.O.W.)
- Radio Control
- PAA-Load
- Clipper Cargo



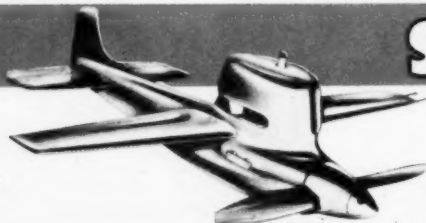
First All-Purpose Gas Model

Here is a model design that has been a full thirteen years in development. It's N. A. C. A. Planing Hull design makes water take-offs easy. Its hull is easily accessible for radio control equipment, PAA Dummy Pilot or Clipper Cargo.

SUPER SPEED...

Each Kit Contains:

- Formed Aluminum Wings
- Carved and Hollowed Body
- Jim Walker "U-Control"
- Plywood Tail Assembly
- Shaped and Drilled Bonnet
- All Necessary Hardware
- Full Size Detailed Plans



Designed by: Bob Elliot

The "Mini and Super Whirlaway's" are Berkeley's newest competition speed designs. Minimum frontal area, light weight design, correct angular set-up, balance and area, plus mirror-smooth aluminum wings combine to give you a design that flies fast low and level toward the hardware.

SUPER WHIRLAWAY "A-B"

For .19 to .29 Engines—12½" Wingspan

\$4.95



MINI WHIRLAWAY "1/2A"

For .049 Engines—8¼" Wingspan

\$2.95

buy **BERKELEY** at your local dealer!

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA., West Hempstead, N. Y. Please include 25¢ packing & postage.

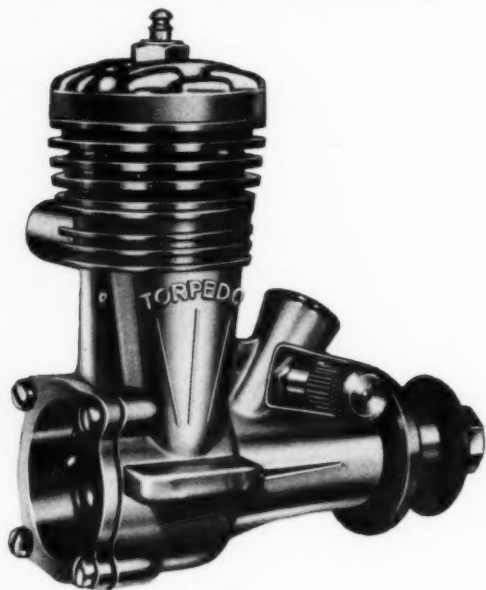
TO

TA

RE

151* NATIONALS WINNERS!

The most outstanding engine in competition at the 1954 Nationals



TORPEDO — America's most versatile engine.

**Torpedoes won First places in
SPEED • FREE FLIGHT • PAY LOAD
COMBAT • NAVY CARRIER • SCALE**

TAKE A TIP...

Whether you fly for pleasure or in competition, it costs no more to fly the best.

Torpedo Engines and Supersonic Fuels are perfect companions for all types of flying.

REPAIR SERVICE

Each year at the Nationals K&B has a repair service available for Torpedo users. Comments about this service were:

"K&B had a real set-up at the 'NATS' on repairing the fellow's engines on the spot. Real nice of you."

—William F. White

"I admire the engine repair service you gave the contestants at the Nationals."

—Howard A. Lewis

"Let me thank you for your aid. I broke my spray bar and parts were not available for my X brand .59. Your repair crew didn't laugh nor refuse but fitted my X brand engine with a K&B spray bar which I am still using. Thanks again."

—R. W. Cory

THE GREATEST VICTORY IN NATIONALS HISTORY

THESE ARE THE FACTS:

On Sept. 18th the 1954 National Model Airplane Contest Survey was completed.

Report forms revealed that K & B Engines or Fuels were used by 151 winners in the top 5 places of gas powered events.

RECORDED WERE



29 — 1ST PLACES

31 — 2ND PLACES

30 — 3RD PLACES

28 — 4TH PLACES

33 — 5TH PLACES

151 TOTAL

Torpedo Engines were used by more winners, than any other make... **OVER 2½ TIMES MORE!**

Here are a few of the unsolicited comments by the 1954 Nationals winners.

"Your engines are tops. I used Torpedoes in all my 'NATS' entries. How about an engine in the .45-.60 displacement range."

—Bob Hodges

"I have one of your new .35s and I won 1st and 2nd in local contests with it. I am very pleased with its performance."

—Morris Anderson

"I have a K&B .15 and two .19s. For free flight you can't beat them. Thanks for your fine craftsmanship."

—James Martin

"Supersonic 1000 gave me the best range of speed over all other makes of fuel available for my Navy Carrier model."

—Thomas Pearson Jr.

"I think your Supersonic Fuels are the finest available and I use them in all my engines."

—David Yust

"Your engines are swell. I own a K&B .15 and a few .19s. I ranked 7th in the East Coast F.A.I. and have won a few watches in P.A.A. with a .19 job."

—Al Gertz

K & B MANUFACTURING CO.
224 EAST PALMER AVENUE
COMPTON, CALIFORNIA

LOOK! A BRAND NEW ENGINE PROPELLED SENSATION

McCoy's MIGHTY "NIKE" ROCKET RACER



And Introducing...

new, beam-mount Diesel engine,
complete with fuel tank, for
boats, cars, planes.

As modern as a guided missile with speed control from 10 to 50 MPH. Compression adjustment lets you run your "Nike" (pronounced Ny-key) slow or fast... indoors or out. No track needed, just a 15-foot circle on any flat surface. Imagine the fun you'll have running the newest thing on three wheels!

Looks just like a Guided Missile On Wheels

McCoy's dashing blue and red "Nike" is handsomely streamlined... measures a foot long and nearly six inches high. All-metal air-frame, with vertical and horizontal stabilizers, conceals fuel tank. Prop hub is red plastic. Complete with new beam-mount McCoy .049 Diesel engine.



OTHER FEATURES

- ★ All steel tricycle gear
- ★ Rubber tires
- ★ Aluminum die casting
- ★ Center anchor post (pylon)
- ★ Real airplane propeller
- ★ Bridle attached

A hobby you can enjoy, any time any where.

Just tank up with McCoy Diesel fuel, fasten control line to bridle and center pylon, then spin the prop and watch her go!

All Yours...
Ready to
go for the
amazing low
price of only



McCoy



PRODUCTS COMPANY

A Wonderful Christmas Gift

8509 HIGUERA STREET ★ CULVER CITY, CALIFORNIA

